PAD 98 057 0594

Sun Refining and Marketing Company
P O Box 426
Marcus Hook PA 19061-0426
215 447 1000

April 29, 1993

Mr. Stephen Hon Lee
PA/DV Permit Section
U. S. Environmental Protection Agency Region III
841 Chestnut Building
Philadelphia, PA 19107

Re: Sun Company, Inc. (R&M) Marcus Hook Refinery
RCRA Groundwater Monitoring Program

Dear Mr. Lee:

Per your request, attached is an update of Sun Company, Inc. (R&M)'s (Sun's) RCRA groundwater monitoring program for the Middle Creek Conveyance of the Marcus Hook Refinery.

The Middle Creek Conveyance became regulated under the United States Environmental Protection Agency (USEPA) hazardous waste regulations in September, 1990, as a result of Toxicity Characteristic regulations promulgated in March 1990. The Refinery submitted groundwater monitoring information to USEPA, as required, in March 1991. The installation of the wells specified in the groundwater monitoring information was completed in September 1991. Five wells, 1 upgradient and 4 downgradient were installed as part of the approved groundwater monitoring program. To date, four quarters of background sampling have been completed on these wells and the data has been submitted to the USEPA. Sun is currently in the second year of sampling as outlined in the groundwater monitoring program and plans to take the indicator parameter samples this month. Once the indicator parameter analysis are complete, the significant differences over the initial background will be determined by comparing the results with the initial background arithmetic mean using the Student's t-test at the 0.01 level of significance.

The Pennsylvania Department of Environmental Resources (PaDER) recently promulgated amendments to the Pennsylvania Hazardous Waste Regulations which added the toxicity characteristic to the hazardous waste determination. As a result, the Middle

Creek Conveyance is now also regulated by the PaDER and subject to Pennsylvania's groundwater monitoring requirements. The Pennsylvania regulations require quarterly and semi-annual sampling of these wells (compared to USEPA's semi-annual and annual sampling). Since PaDER's schedule is more frequent, Sun will be planning to meet that sampling schedule, and the results will be provided to both the USEPA and PaDER.

As described in Sun's most recent submittal to the USEPA, the upgradient well has become unusable as a monitoring well since free hydrocarbon product (NAPL) is present on the surface of the groundwater. This NAPL makes it impossible to obtain a representative sample of the underlying groundwater. As a result, Sun is evaluating alternative locations for the siting of the upgradient well. Sun is working with a hydrogeologist in siting the well and information on the proposed location will be submitted to the USEPA within the next month. Upon USEPA's approval, the well will be installed, and quarterly background sampling of this new upgradient well will be initiated.

If you have any questions relating to this matter please call me at (215) 447-1959.

Sincerely,
SUN COMPANY, INC. (R&M)

Judy S. Brackin
Sr. Environmental Engineer

JSB:erg
Attachment
cc: Mr. Lawrence Lunsk
Solid Waste Facilities Supervisor
Commonwealth of Pennsylvania
Department of Environmental Resources
Southeast Regional Office
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428

U.S. ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL SERVICES DIVISION

REGION III

MULTI-MEDIA INSPECTION REPORT

NPDES, UIC, FIFRA, UST

PCB, SPCC, WETLANDS, RCRA,

AIR, AND EPCRA 313

SUN CO. INC.
P.O. BOX 426
MARCUS HOOK, PENNSYLVANIA
19061-0426

MARCH 31 TO MAY 11, 1992

U.S. ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL SERVICES DIVISION

REGION III

MULTI-MEDIA INSPECTION REPORT

NPDES, UIC, FIFRA, UST

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AIR, AND EPCRA 313

SUN CO. INC.
P.O. BOX 426
MARCUS HOOK, PENNSYLVANIA
19061-0426

MARCH 31 TO MAY 11, 1992

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

MAR 24 1993

Mr. Leon Kuchinski
Division of Hazardous Waste Management
PA Department of Environmental Resources
Market State Office Building
400 Market Street, 14th Floor
Harrisburg, PA 17105-8471

Re: Request for Inspection Reports
Sun Company, Inc.
Marcus Hook Facility
Philadelphia Facility

Dear Leon:

Please find enclosed as you requested copies of the RCRA portion of the EPA multimedia inspection reports for the Sun Company, Inc. facilities located in Marcus Hook and Philadelphia. Copies of these reports were previously sent to the PADER Conshohocken Office (see the attached letters). I would also like to point out that EPA had conducted follow up inspections in February 1993. Copies of the follow up inspection reports will be forwarded to you when the reports are made final.

If you should have any further questions concerning these reports, please do not hesitate to call me at (215) 597-6413. I'm looking forward to working with you again.

Sincerely,

Pat McManus

Patrick McManus
Environmental Engineer
General RCRA Enforcement Section

Enclosures

cc: Mary Letzkus, 3HW62

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I. INTRODUCTION

Personnel of US EPA Region III Office, conducted a multi-media compliance inspection at the SUN Co. Inc., P.O. Box 426, Delaware Ave. and Green Street, Marcus Hook, Pennsylvania, 19061-0426, from March 31 to May 11, 1992. This multi-media inspection was conducted along with OSHA.

This facility was built in 1902 and has been owned SUN Co. Inc. The facility employs about 850 people. The facility operates 24 hours/day, 7 days/week, 365 days/year.

The Refinery is large. It composes of at least one-half of Marcus Hook, some surrounding communities and extends southward into Delaware. It is divided into two operating areas: East Area and West Area. The East area consists of: one crude unit, catalytic cracker, and the transfer and shipping activities. All the crude to the refinery is delivered by tanker and various products are shipped from these docks. More than one mile of the refinery is along the Delaware River with three docking piers. Docks #1, #2, and #3, with 3A, 3B, and 3C. The West area consists of: one crude unit, gas plant, reforming area, UDX plant, Alkylation plant, and MTBE plant. The Ethylene complex is at the southern end, in Claymont, Delaware.

II. OBJECTIVE

The objective of the inspection was to determine the facility's compliance status with the applicable environmental laws, regulations, permits, consent decrees, and other related requirements and conditions. Specifically, the EPA inspection team reviewed facility compliance with the following:

National Pollutant Discharge Elimination System (NPDES)

Underground Injection Control Program (UIC)

Federal Insecticide, Fungicide, and Rodenticide Act - (FIFRA)-Pesticides

Underground Storage Tank Program (UST)

Toxic Substances Control Act (TSCA) - PCBs

Spill Prevention Control and Countermeasure Program (SPCC)

Resource Conservation and Recovery Act (RCRA)

Clean Air Act (CAA) - Air (CEMs), Asbestos NESHAP, Air General, Benzene NESHAP, Air VOC

Emergency Planning Community Right-To-Know Act, Section 313

III. INSPECTION TEAM

Participants in the inspection included representatives from EPA's Regional Office and the Annapolis Operations Section of Environmental Services Division (ESD), Annapolis, Maryland. Jim Gouvas and Dave O'Brien, from the Philadelphia Operations Section, ESD had the overall lead and coordination for the entire multi-media inspection of the refinery. They participated in all the program inspections.

The OSHA inspection was under the Special Emphasis Program in the Petrochemical Industries (PETROSEP). These inspectors were from the Philadelphia and Wilmington offices:

Harold Rowland, lead	Richard Jefferies
Hiliary Holloway	Richard Berkman
James Woodburn	Victoria Smalley

Participants for SUN Co. Inc. included, Gary Rabik, Manager, Environmental Engineering and Risk Management Department, and Charles D. Barksdale, Jr, PE, Sr. Environmental Consultant, Environmental Department, Refining and Marketing Division. Mr. Barksdale was SUN Co.Inc.'s lead contact and coordinator for the entire multi-media inspection. He participated in all the media inspections.

The following is a list of the lead inspector/contact for each program during this inspection:

EPA		SUN
Marilyn Gower	NPDES	Chuck Barksdale Judy Brackin
Mark Nelson	UIC	Chuck Barksdale
Jim Lorah	FIFRA	Dave Kistler
Penn Agriculture Howard Walker Jim Hudson	PESTICIDES	Chuck Barksdale

Carol Febbo	**UST**	Dave Kistler
Delaware		Chuck Barksdale
Mick Buttler		
Gerry Crutchley	**TSCA**	Chuck Barksdale
Charlene Creamer	**PCBs**	
Kevin Koob	**SPCC**	Chuck Barksdale
Gerry Crutchley		
Jim Gouvas		
Dave O'Brien		
Jim Woodburn (OSHA)		
Bill Hoffman	**WETLANDS**	Chuck Barksdale
Bobby Vallandingham	**RCRA**	Tim Roy
		Chuck Barksdale
	CAA	
	ASBESTOS	
Jim Gouvas		Heather Chelpaty
Dave O'Brien		George Keegan
		Chuck Barksdale
Walt Wilkie	**BENZENE**	George Keegan
Lisa Wild	**VOC**	Heather Chelpaty
Dave O'Brien	**AIR**	Chuck Barksdale
Jim Gouvas		Bill Kozak (Team Inc.)
Delaware		
Lee Randolph	**ETHYLENE**	
	OXIDE PLANT	
Mikal Shabazz	**EPCRA 313**	Art Meritt (Y&H)
		Harold Bire (Phila)
		Norman Surprenant
		Heather Chelpaty
		Chuck Barksdale

IV. OPENING CONFERENCE

On March 31, 1992, an opening meeting was held with EPA, OSHA, and SUN Co. representatives to inform SUN about our inspection and gave them a schedule of the planned EPA inspections. We also set up a time for a general conference with all inspectors and appropriate SUN representatives. This opening meeting consisted of the following:

OSHA: Harold Rowland

EPA: Jim Gouvas
Dave O'Brien

SUN: John Rossi, Plant Manager
Gary Rabik, Manager Environmental Engineering Risk Management Department
Ed Doyle, Manager Safety & Health Department

On April 2, 1992, an opening conference was held with all the OSHA, EPA, and SUN Co. Inc. representatives to discuss the objectives of the inspection and what would be required by the inspection team to meet the objectives. The SUN Co Inc. representatives gave us a short safety training film and lecture of the required safety procedures at the refinery. The following is a brief summary of this meeting:

1. The required safety equipment is: Nomex coveralls, hard hat, safety glasses with side shields, steel toed shoes, long sleeves, and ear plugs. SUN would supply EPA with Nomex since this is a new requirement at all refineries.

2. Inspection procedures: there would always be a SUN representative along with EPA inspectors in the field, EPA will split samples with SUN Co Inc., photos can be taken and EPA will keep a photo log and have two copies, one for EPA and one for SUN Co. Inc. The OSHA inspectors would be accompanied by SUN management and a SUN union representatives.

Following this opening meeting, SUN Co. Inc. provided all participants with a tour of the facility.

V. BACKGROUND

General Operation Description

SUN Co Inc. Marcus Hook Refinery is located in the towns of Marcus Hook, Pennsylvania and Claymont, Delaware. The SUN Co. Inc. Marcus Hook Refinery is approximately 10 miles southeast of Philadelphia, Pennsylvania. The refinery has a crude oil processing design capacity of 165,000 barrels per day. The refinery raw materials stocks (crude oil , gas oil, etc..) is brought into the refinery by tanker ships and barge. The stocks are stored at an on site tank farms before being processed. The refinery products are: Gasoline (94 Ultra, 92 Unleaded, and 87 Unleaded), K-1 Kerosene, Jet Fuels, Home Heating Oils, Blended Residual Fuels, Xylene, Toluene, Benzene, Propylene, Propane, Butane, and Refinery Fuels. The finished products, dependent on

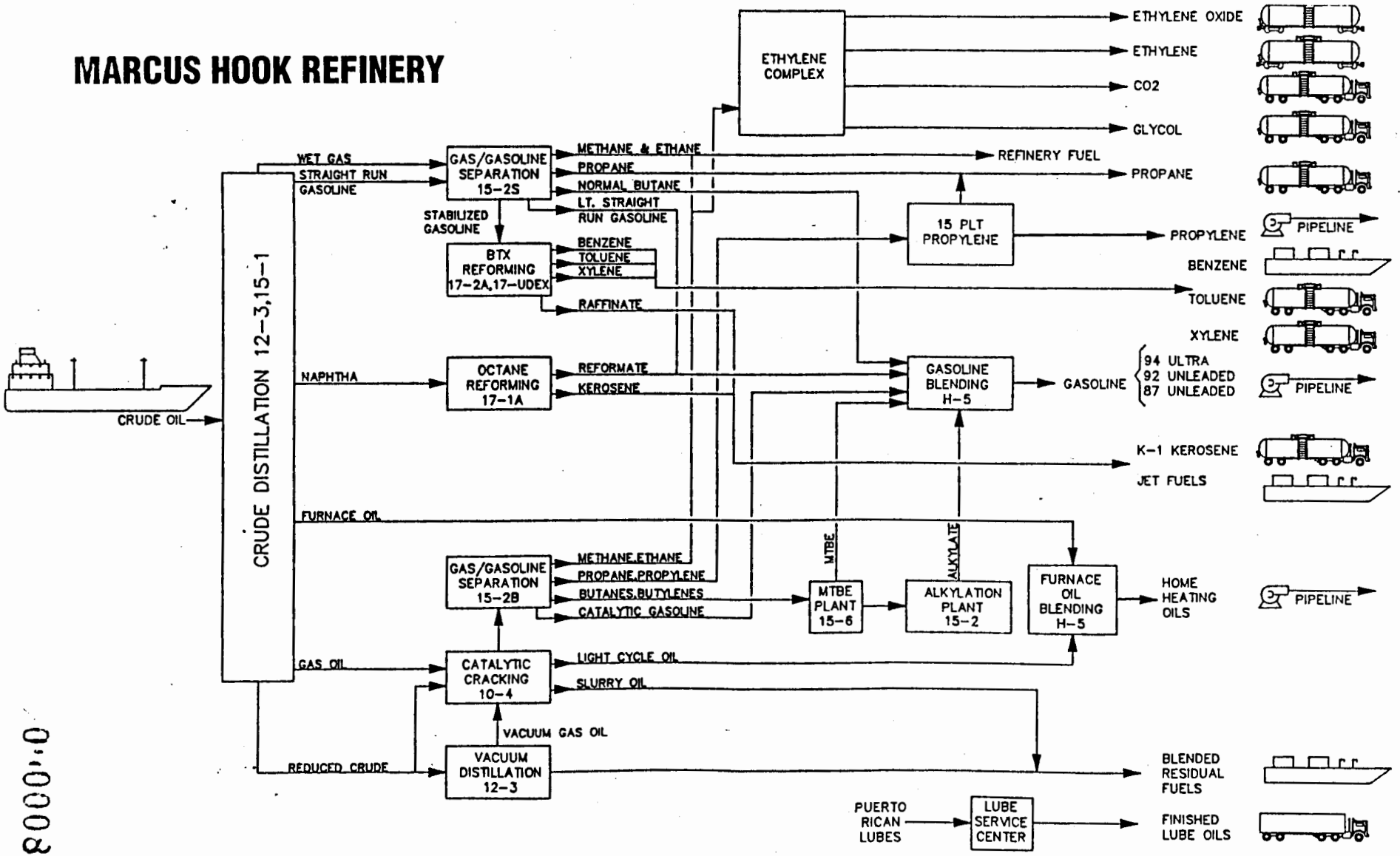
the type of product, are sent to the customer by rail road tanker car, tanker ship, barge, tanker truck, and pipline. The refinery product storage facilities are tanks farms (on and off site), and on site caverns. Any refinery generated waste gases containing hydrogen sulfide (H2S) or sulfur compounds are sold to General Chemical Co, Inc. located in Claymont, DE. These waste gases are sent to General Chemical Co, Inc. via pipeline.

An on site Lube Service Center receives (via tanker ship), stores, and blends lub oils refined at the company's Puerto Rican Refinery into the product, Finished Lube Oils.

SUN Co, Inc. has purchased SunOlin Chemical Company's Claymont, Delaware ethylene oxide manufacturing facility. The facility is adjacent to the SUN Co, Inc. Marcus Hook Refinery. The Claymont Ethylene Complex facility recovers ethylene from the waste gases generated at the refinery. The main products of the Ethylene Complex are Ethylene Oxide, Ethylene, Glycol, and Carbon Dioxide.

Process flow diagrams can be found on the next couple of pages.

MARCUS HOOK REFINERY

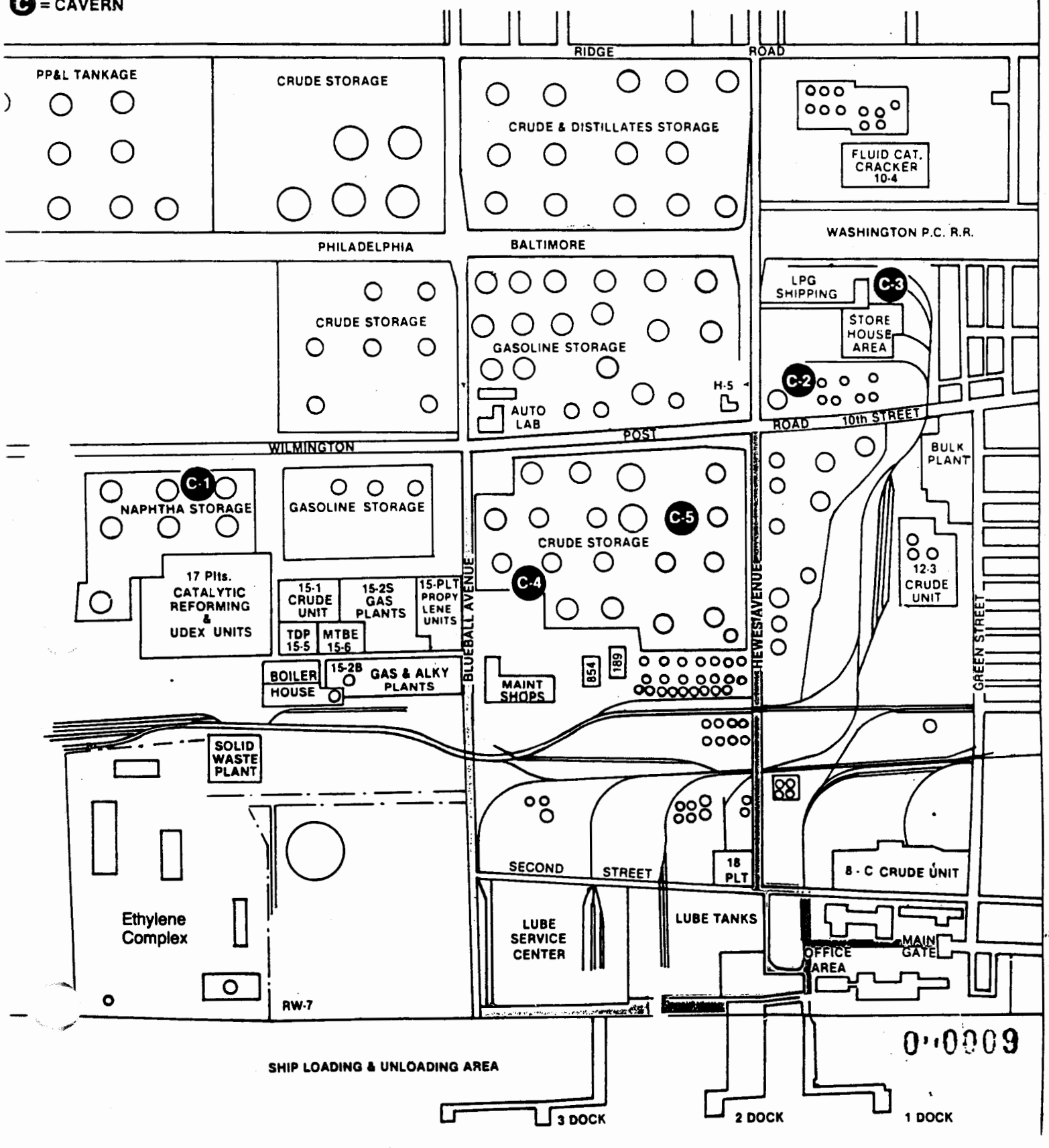


8000-0

GROUP A

Main Office
Service Building
ARD
R&D Shop
Marine Building
Marine Storehouse
Marine Machine Shop

KEY
Primary Evacuation Route
Secondary Route
Third Route



A refinery's raw material is crude oil. Crude oil is a fossil fuel which is formed from deposits of decayed plants and animals over hundreds of millions of years. Next to water, it is the most valuable liquid on earth.

Refinery Processing

Petroleum refining is a combination of processes designed to "sort" hydrocarbons into useful "fractions", then improve the properties of the fraction to make the products that we know.

Several different chemical techniques are used in the refinery process, including:

Separation processes that separate hydrocarbons based on physical properties such as boiling point (distillation).

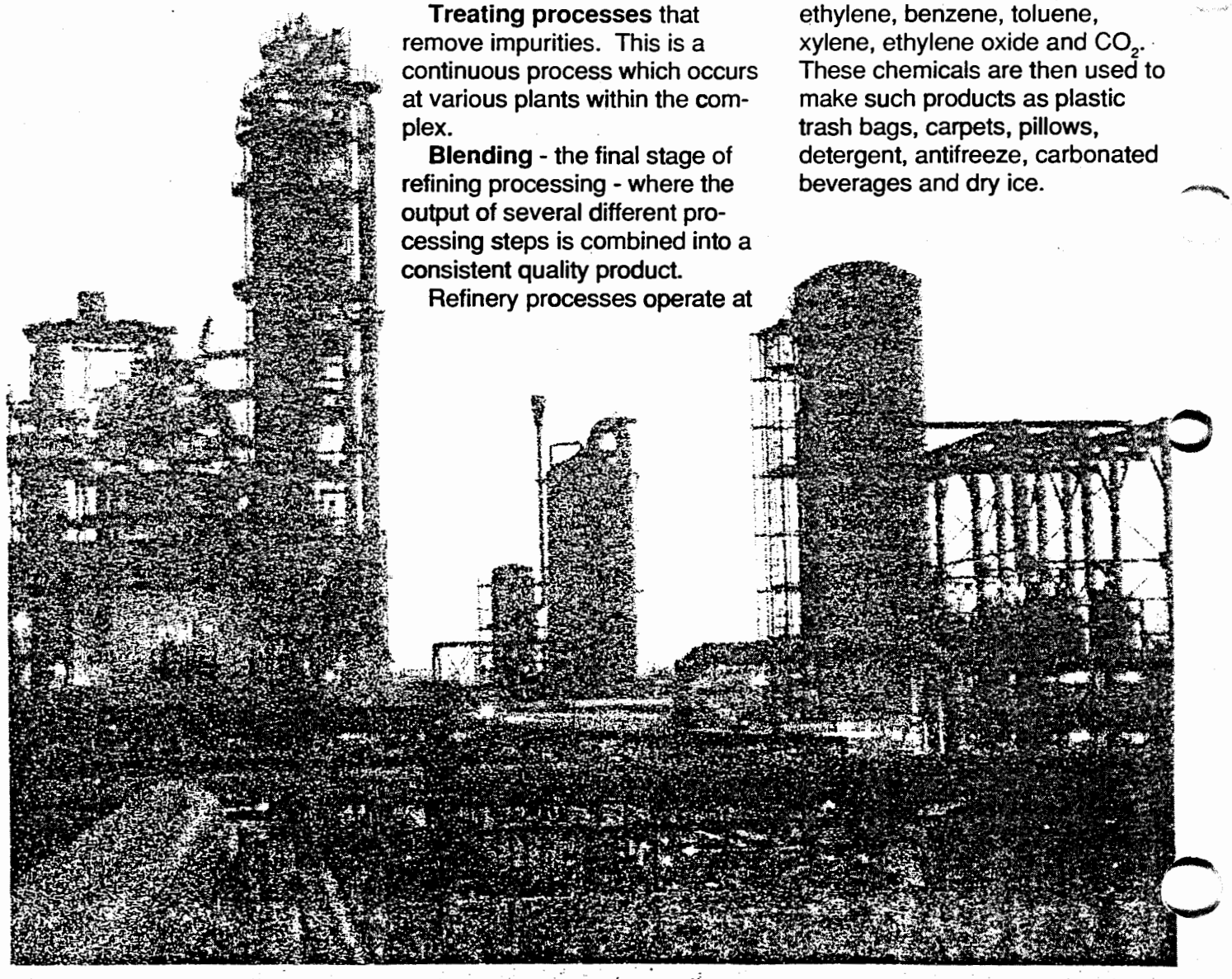
Conversion processes that change chemical properties of the fractions such as "catalytic reforming" or "catalytic cracking".

Treating processes that remove impurities. This is a continuous process which occurs at various plants within the complex.

Blending - the final stage of refining processing - where the output of several different processing steps is combined into a consistent quality product.

Refinery processes operate at temperatures up to 1,500 degrees Fahrenheit and at pressures from a low vacuum to 700 pounds per square inch. Catalysts - material that help changes occur - are introduced in many of the processes.

Among the many products produced at the Delaware Valley Refining Complex are: propane, butane, gasoline, jet fuel, kerosene, heating oil, asphalt and petro- chemicals——propylene, ethylene, benzene, toluene, xylene, ethylene oxide and CO_2. These chemicals are then used to make such products as plastic trash bags, carpets, pillows, detergent, antifreeze, carbonated beverages and dry ice.



VI. SUMMARY OF FINDINGS

a. NPDES

INSPECTION DATE: APRIL 9, 1992

1. Outfall 101 is not sampled according to the frequency in the NPDES permit. According to the facility this requirement was modified by a Compliance Order. 40 CFR 122

2. The thermometer used for self-monitoring purposes should be calibrated with an NBS-calibrated thermometer at the temperature normally observed at the effluent from outfalls 201 and 301. - Recommended action.

3. The requested calibration dates for the in-house flowmeter calibration were not received by the EPA inspector. 40 CFR 122

VI. SUMMARY OF FINDINGS

b. UIC

INSPECTION DATE: APRIL 8, 1992

Section 1422: Safe Drinking Water Act
40 CFR 144: Underground Injection Control Program
40 CFR 146: Underground Injection Control Program: Criteria and Standards

Based upon the results of this inspection, including interviews with SUN personnel and conversations with Marilyn Gower of ESD who performed the NPDES inspection, we have determined that SUN Refining and Marketing does not own or operate any injection wells at the Marcus Hook Refinery nor are they otherwise involved in any subsurface waste water or storm water injection activity.

The Marcus Hook Refinery utilizes underground caverns to store propane and butane (finished products). Propane and butane are gases at standard temperature and pressure and therefore are not subject to the requirements of the UIC program (see 40 CFR § 144.6 (b)) which regulates the subsurface emplacement of "fluids". Ground water which accumulates in the bottom of the cavities is periodically removed and treated through the waste water treatment unit.

VI. SUMMARY OF FINDINGS

c. FIFRA-PESTICIDES

INSPECTION DATE: April 10, 1992

1. The Pesticides program has reviewed the preliminary inspection report from the Pennsylvania Department of Agriculture, Bureau of Plant and Industry. At this time there does not appear to be any FIFRA violations.

2. There is concern regarding a possible violation(s) with pesticides export requirements. The PDA Inspectors are in the process of further documenting the export of Sun's pesticide product "SUN SPRAY OIL" to non-english speaking countries.

3. A sample of "SUN SPRAY OIL" is in the process of being analyzed at a pesticide formulation laboratory. The purpose is to screen the sample for any possible contamination or adulteration. As soon as the results are received, a final determination can be made if any FIFRA violations exist.

VI. SUMMARY OF FINDINGS

d. UST

INSPECTION DATE: APRIL 14, 1992

40 CFR 280, Subpart F: Release Response and Corrective Action For UST Systems Containing Petroleum or Hazardous Substances

40 CFR 280.62: Initial abatement measures and site check

40 CFR 280.63: Initial site characterization

1. Concrete pads are settling around the two 6,000 gallon gasoline pumps. This could indicate leakage from the tanks.

2. There is no Stage II vapor recovery on these tanks.

3. The only information that the notifications are lacking is a signature under Section V. and Section VII(14).

VI. SUMMARY OF FINDINGS

e. TSCA/PCB

INSPECTION DATE: APRIL 14, 1992

40 CFR, Part 761.30 (a) (1) (xii)

1. At the time of the subject inspection, there were no records available to indicate that the required inspections of PCB Transformers had actually been conducted.

40 CFR, Part 761.180 (a)

2. In the 1986 through the 1990 Annual Reports, the listings of the weight, in kilograms, for PCB fluids in PCB Items is incorrect. It appears that the reported weights of the PCB fluids were determined on a percentage basis. The weights should be reported as the total weight in kilograms of the fluid in the PCB Items.

3. The totals (gallons and kilograms) for PCB Items remaining in service at the end of the calendar year are incorrect. It appears that an error was made while preparing the 1986 report and it was carried over to the 1987 & 1988 reports.

4. The facility's Annual Reports do not list the totals (numbers and weights) for PCBs and PCB Items removed from service and shipped for disposal during the calendar year.

VI. SUMMARY OF FINDINGS

f. SPCC

INSPECTION DATE: APRIL 15/16 and MAY 11, 1992

40 C.F.R. 112.7

1. The format and the content of the subject facility's SPCC Plan deviated significantly from EPA's regulatory requirements.

40 C.F.R. 112.7(b)

2. Review of the SPCC Plan for the subject facility revealed a violation which requires a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each major type of equipment failure.

40 C.F.R. 112.3

3. Inspection of the facility revealed a number of unblanked piping or pipelines (see attachment A), therefore, this may be considered a violation for failure to implement the SPCC Plan and a violation of

40 C.F.R. 112.7(e)(3)

4. Pipelines not in service for extended periods of time are required to be capped or blank-flanged and marked as to origin.

40 C.F.R. 112.7(e)(2) (iii)(D)

5. Section 2.2 of the Plan states that "stormwater accumulating within the diked storage areas is released through normally closed valves." Although this is consistent with the requirements of 40 C.F.R. 112.7(e)(1), it is unclear, both from information obtained during the inspection and the review of the Plan, whether records are retained by the facility as required by 40 C.F.R. 112.7(e)(2) (iii)(D).

40 C.F.R. 112.7(e)

6. Further inspection revealed gate valves left open (see attachment A). This may be considered a violation of 40 C.F.R. 112.3 for failure to implement the SPCC Plan and a violation of 40 C.F.R. 112.7(e) for failure to seal bypass valves closed, inspect run-off rainwater, reseal the bypass valve following drainage, and/or maintain adequate records of such events.

40 C.F.R. 112.7(e)(2)

7. Requires diked areas to be sufficiently impervious to oil. Inspection of the facility indicated that the secondary containment for some tank installations may not be sufficiently impervious to contain spilled oil. The accumulation of oil observed in diked areas also indicates a violation of 40 C.F.R. 112.7(e)(2) which requires visible oil leaks which are sufficiently large enough to result in an accumulation of oil within the diked areas should be promptly corrected.

40 C.F.R. 112.7(c)

8. Bunker C fuel oil is stored in aboveground storage Tank 813... located adjacent to a stormwater inlet and does not have secondary containment. This may be a violation of 40 C.F.R. 112.7(c) which requires appropriate containment and/or diversionary structures.

40 C.F.R. 112.7(e)

9. Requires all bulk storage tank installations be constructed so that a secondary means of containment be provided for the entire contents of the largest single tank plus sufficient freeboard for precipitation. This is not the case by Tank 813.

40 C.F.R. 112.7

10. Section 4.2 of the Plan discusses Ships and Barges which are not regulated under 40 C.F.R. 112. Once again, because the format and content of the subject facility's SPCC Plan deviated from EPA's regulatory requirements, it could be considered to be in violation of 40 C.F.R. 112.7 which requires the SPCC Plan to be carefully thought-out.

40 C.F.R. 112.5(a)

11. Section 5 of the Plan states that "an extensive, long-range project is underway to convert all buried pipelines in the vicinity of navigable waterways to aboveground installations." This may be considered a change which materially affects the facility's potential for discharge of oil into or upon the navigable waters of the United States. Therefore, this is a violation of 40 C.F.R. 112.5(a) which requires that the SPCC Plan be amended in accordance with § 112.7 and that the amendment be fully implemented no later than six months after such change occurs.

40 C.F.R. 112.7(a)

12. Requires a written description of each spill for the time period within twelve months of the effective date of the regulation. The effective date of the regulation was January 11, 1974, therefore, facilities subject to the regulation should provide a description of the spills for a time period from January 11, 1973 to January 11, 1974. Failure to accurately provide this information is a violation.

40 C.F.R. 112.7

13. the Plan provides a " Hazardous Substances Reportable Quantities" list. Hazardous materials are not regulated under 40 C.F.R. 112, and therefore, such a list may not be appropriate as an integral part of a SPCC Plan. Once again, because the format and content of the subject facility's SPCC Plan deviated from EPA's regulatory requirements, it should be considered to be in violation of 40 C.F.R. 112.7 which requires the SPCC Plan to be carefully thought-out.

40 C.F.R. 112.7

14. "Storage Tank and UST Survey." The itemized description of tanks in this attachment includes tanks which contain materials other than oil. Because 40 C.F.R. 112 only addresses oil, the inclusion of these other materials may not be appropriate as part of the SPCC Plan. Once again, because the format and content of the subject facility's SPCC Plan deviated from EPA's regulatory requirements, it could be considered to be in violation of 40 C.F.R. 112.7 which requires the SPCC Plan to be carefully thought-out.

VI. SUMMARY OF FINDINGS

g. WETLANDS

INSPECTION DATE: APRIL 20, 1992

I have reviewed the U.S.G.S. topographical map for Marcus Hook to evaluate if Middle Creek drains a five square mile or greater area. The map shows this stream to be intermittent a short distance above the dam and less than three miles in length from its confluence with the Delaware River. Further, there are several other streams in close proximity (indicating a drainage divide).

My conclusion is that nationwide permit 26 would apply for dredge and full activities in Middle Creek, in nontidal sections above the dam, provided a Section 401 Water Quality Certification has been acquired from the State. Therefore, no enforcement action should be taken for any channel work in this area pursuant to Section 404.

For tidal sections below the dam, bank stabilization projects greater than 500 feet in length would require Section 404 permits. Review of the U.S.G.S quad indicates that the channelization (bank stabilization) of this section of Middle Creek was performed prior to development of the map (probably when the dam was constructed in 1970). Therefore, no enforcement action pursuant to Section 404 is warranted here either.

VI. SUMMARY OF FINDINGS

h. RCRA

INSPECTION DATE: APRIL 21, 1992

1. The treated K051 sludge is delisted and landfilled off site in Pennsylvania.
2. The wastewater treatment provides oil/water separation and pH adjustment for K050 waste. Treated wastewater is discharged to the Delcora POTW. The wastewater is contaminated with benzene.
3. The facility plans to close the Middle Creek conveyance/surface impoundment system. A detailed closure plan is to be submitted in the near future. The conveyance system has no liner and reveals oil saturation. The closure may involve a corrective action plan.
4. Plans are to replace the wastewater treatment numerous oil/water separators with one separator and thermal oxidation.
5. (a) Petroleum NAPHTHA is recycled with an off site contractor.
   (b) Spent sulfuric acid is shipped off site and beneficially reused to produce virgin sulfuric acid.
   (c) Spent caustic/sodium hydroxide solution is manifested off site and beneficially reused as a raw material to recover cresylic acids and paper processing chemicals.
6. A facility remedial assessment has been completed on site by a private contractor. Findings have been submitted to EPA for response and proposals.

7. Oil sheen was noticed on the lower section of Middle Creek that flows to the Delaware River. Oil absorbent booms were provided. Non contact cooling water and stormwater runoff discharges with NPDES permit conditions at this section of the creek.

8. Cracks in concrete was noticed at the truck unloading area of the solid waste treatment facility.

9. PA Code 25:265.54 - The contingency plans emergency coordinators list needs to be amended/updated.

10. PA Code 25:265.142 - The closure cost estimate needs to be adjusted for the annual inflation factor.

VI. SUMMARY OF FINDINGS

i. AIR

INSPECTION DATES: APRIL 23, 24, 29, 30
MAY 1, and 6, 1992

A. Pennsylvania Title 25 Rules and Regulations
Part I: DER Subpart C

Section 124. DER adopted all NESHAPs, 40 CFR Part 61

40 CFR 61.140, Subpart M, Asbestos NESHAP

1. SUN did not send Notice of Asbestos removal to EPA, only to DER and DNREC.

2. Sun Environmental does not track small asbestos removal jobs, only big ones. They should track all jobs and maintain a year to date running total of all asbestos removed. This is because they are required to notify EPA if they exceed the yearly amount they estimate on the notification form.

B. Pennsylvania Title 25 Rules and Regulations
Part I: DER Subpart C

Section 129.50 Sources of VOC
Section 129.55 Petroleum Refineries
Section 129.58 Fugitives
Section 129.56 Storage Tanks

40 CFR 61.110, Subpart J, Benzene NESHAP

I. VOC and Benzene Fugitive Emission Program

a. VOC Benzene Records Review:

Acceptable

b. VOC and Benzene Leaks and Tags:

Violations Observed for Equipment Tagging

EPA Inspection Data: 0 Leaks
15 Missing Tags
470 Total EPA Inspections
for leaks and tags

Section 129.56 Storage Tanks

c. VOC Tanks

Internal Roofs:	Inspected:	14	Leaks: 2; Tanks #101 and #317
External Roofs:	Inspected:	2	Leaks: 0

Benzene Tanks

Internal Roofs:	Inspected:	6	Leaks: 1; Tank #624
TOTAL TANKS:	Inspected:	22	Leaks: 3

C. Pennsylvania Title 25 Rules and Regulations
Part I: DER Subpart C

Section 129.61 Stage I Vapor Recovery

Section 129.82 Stage II Vapor Recovery

1. Stage I Vapor Recovery is required on all gasoline tanks greater than or equal to 2,000 gallons.

Stage I is required on the two 6,000 gallon gas tanks in the Refinery and on the five 4,000 gallon and six 2,000 gallon gas tanks in the R & D Facility. During the AIR inspection, we did not address the status of the Stage I Recovery Systems on these small tanks.

2. Stage II Vapor Recovery is required on all gasoline stations/pumps as below:

May 15, 1993: Stations for which construction began after Nov. 15, 1990.

Nov. 15, 1993: Stations which dispense more than 100,000 gallons per month.

Nov. 15, 1994: Stations which dispense between 10,000 and 100,000 gallons per month.

Service stations in the five county Philadelphia Region would still have to install Stage II controls when they replace or add underground storage tanks.

Since Stage II is not yet required, this was not addressed in the AIR inspection. Also, we doubt that the 10,000 gallon/month through put is met by all these pumps in the refinery and R&D facility.

VI. Summary of Findings

j. SARA TITLE III SECTION 313

INSPECTION DATES: April 27 & 28, 1992

Sun Company, Incorporated submitted reasonably accurate Form Rs for the 1989 reporting year. The records did not show that Form Rs were not submitted for any reporting year for the 3.4% nickel-oxide lased hydrodesulfurization (HDS) catalyst situated at the Reformers' Pretreator and HDS reactors.

Although a Form R for the nickel-oxide HDS catalyst may not be required for each year, such a Form R should have been submitted when any of the above cited reactors are charged with fresh catalyst and the 10 thousand pound otherwise used threshold was met or exceeded. The contractor that hired to compile the information and prepare the Form Rs for TRI reporting was under the erroneous impressions that a Form R must have been submitted only when a release occurs.

VII. NPDES Compliance Evaluation Inspection

Sun Oil Refinery, Marcus Hook
Marcus Hook, PA 19061-0426

Permit #: PA0011096

Inspection Date: Apr. 9, 1992

REPRESENTATIVES

FACILITY: Judy Brackin, Sr. Environmental Engineer
Charles Barksdale, Sr Environmental Consultant

EPA: Marilyn Gower, Environmental Scientist
Jim Gouvas, Environmental Protection Specialist
Dave O'Brien, Environmental Protection Specialist

I. INTRODUCTION

The NPDES Compliance Evaluation Inspection was conducted on April 9, 1992 at the Sun Refinery, Marcus Hook, Pennsylvania as part of a multi-media inspection. The inspection concentrated on the accuracy of self-monitoring data reported by the facility on the Discharge Monitoring Report (DMR) forms. Sampling locations and procedures, analytical methods, and data summary techniques were reviewed as part of the inspection. Compliance with the general and special conditions of the NPDES permit was also reviewed.

II. PERMIT

The following outfalls are listed on the permit with monitoring requirements: 101, 201, 301, 401, 004, 005, 006 and 007.

Also listed on the permit but with no monitoring requirements is outfall 501, which is the combination of 201 and 301, and outfalls 020 - 023 which are stormwater drains from non-processing areas.

Several of the listed outfalls have monitoring requirements but, according to the facility representatives, the outfall discharges were changed as a result of a 1987 Compliance Order.

Since fall 1988, the discharges from outfalls 004, 005, 006 and 007 go to Delaware Wastewater Treatment Plant.

Outfall 101 is not sampled according to the frequency in the permit; outfall 101 is monitored only if there is a dam overflow. The discharge represents a combination of groundwater seepage and storm water runoff below Middle Creek dam and Middle Creek Dam Overflow. This would occur if the storm were of such intensity that it required the opening of the dam. According to facility representatives, this occurred in July 1989 and August 1990 and samples were not collected as no one was available to collect the sample due to the magnitude of the storm.

There is no discharge at the outfall from the propane warming unit (401) as non-contact river cooling water is not used. However, the outfall will remain on the permit application as the facility would like the option to use the outfall if necessary in the future.

The only outfalls listed on the permit which are actively discharging are outfall 201, non-contact cooling water from the York gas compressor, and outfall 301, non-contact cooling water from the Elliot gas compressor. These outfalls are sampled as required by the permit.

III. DESCRIPTION

The EPA inspector visited Outfall 201 and outfall 301 along with the facility sampler, Don Major. Mr. Major does the required once a week sampling for the NPDES permit. Mr. Major had a log book with the required sampling information. All the dates checked in the log book by the EPA inspector corresponded correctly with the records reviewed prior to the tour. It was recommended that Mr. Major calibrate his thermometer with an NBS-calibrated thermometer at the temperature normally observed at the effluent from 201 and 301. The other parameters sampled for the DMR are oil and grease and TOC. The oil and grease is analyzed at the on-site lab. The TOC sample is sent to NET, a contract lab, in Thorofare, New Jersey for analysis.

Below Middle Creek Dam the water flows to the Delaware. Above the dam, the creek, which flows through the facility, is a conveyance for process wastewater and contaminated stormwater run-off from the processing areas. Along with the sanitary wastewater from the facility, the water above Middle Creek Dam, is pH-adjusted and then piped to the Delaware County Regional Water Quality authority (DELCORA) for treatment. Previously, off-site stormwater went to Middle Creek. The Linwood By-pass was installed and now channels off-site stormwater to Middle Creek below the dam which then flows to the Delaware River.

During the tour an oil sheen was observed on the water below Middle Creek Dam. Although Middle Creek is tidal, facility representatives stated the oil seems to stay in that area. A boom stretched across just below the dam did not appear to have any effect on stopping the oil. At the confluence of Middle Creek and the Delaware River, another boom was stretched across Middle Creek. This boom appeared to stop the oil from entering the Delaware River. No oil was observed below the boom in Middle Creek.

IV. FLOW AND SAMPLE MONITORING

As stated previously the samples are collected correctly at outfalls 201 and 301. The flow is monitored at outfall 201 by annubar meter with a range of 0 - 10,000 GPM. The flow is monitored at outfall 301 by an annubar meter with a range of 0 - 4,000 GPM. In-house calibration dates were requested during the inspection, and by phone several weeks after the inspection. The requested calibration dates were not received by the EPA inspector.

V. DMR RECORDKEEPING

The DMR reviewed for this inspection and the associated records were in-compliance. No errors were found in the calculations for the discharge monitoring report.

Outfalls	Description - Discrepancies between the NPDES permit and the actual monitoring that is conducted
101	Monitor only during a bypass as a result of 1987 Compliance Order.
401	No discharge as cooling system was closed.
004	Pumped to Delcora as permit limits could not be met for direct discharge. 1987 Compliance Order
005	Same as 004.
006	Same as 004.
007	Same as 004.

No Discrepancies -

201 and 301 - non-contact cooling water.

501 - no monitoring required.

020-023 - non-contaminated stormwater run-off, no monitoring required.

VI. PRETREATMENT

Sun Oil is a federal categorical industry under Part 419, Petroleum Refining. Pretreatment standards were established for ammonia, and oil and grease; the compliance date was Dec. 1, 1985.

Sun Oil samples for oil and grease, and ammonia on a daily basis and is not in significant non-compliance for either oil and grease or ammonia. Benzene is regulated by DELCORA at 5ppm. The usual range for benzene in the process wastewater to DELCORA is 2-3 ppm, which is sampled twice a year by Sun Oil and twice a year by DELCORA. There is no federal categorical standard for benzene. The amount would be regulated by DELCORA's local limits and their ordinance.

VIII. Underground Injection Control Program

SUN/Marcus Hook Multi-media Inspection

April 8, 1992

On April 8, 1992, UIC inspector Mark Nelson met with SUN representatives Charles Barksdale and Judy Brackin for the purpose of evaluating the SUN/Marcus Hook refinery for compliance with the Underground Injection Control (UIC) program as provided for by Section 1421 of the Safe Drinking Water Act. A notice of UIC inspection was provided to SUN upon entry. The UIC inspection was conducted in conjunction with the National Pollutant Discharge Elimination System (NPDES) inspection. The NPDES inspector was Marilyn Gower of the Environmental Services Division (ESD). Jim Gouvas and Dave O'Brien of ESD were also present during the inspection.

The UIC inspection included an extensive record review, a detailed description of the wastewater treatment plant processes by SUN representatives and a field inspection of the waste water treatment unit, the storm water collection facilities and the NPDES permitted outfalls.

Based upon the results of this inspection, including interviews with SUN personnel and conversations with Marilyn Gower of ESD who performed the NPDES inspection, we have determined that SUN Refining and Marketing does not own or operate any injection wells at the Marcus Hook Refinery nor are they otherwise involved in any subsurface waste water or storm water injection activity.

The Marcus Hook Refinery utilizes underground caverns to store propane and butane (finished products). Propane and butane are gases at standard temperature and pressure and therefore are not subject to the requirements of the UIC program (see 40 CFR § 144.6 (b)) which regulates the subsurface emplacement of "fluids". Ground water which accumulates in the bottom of the cavities is periodically removed and treated through the waste water treatment unit.

UNDERGROUND STORAGE TANK INSPECTION REPORT
SUN MARKETING AND REFINING COMPANY
MARCUS HOOK, PENNSYLVANIA

Date of Inspection: Tuesday, April 14, 1992
Time: 9:00AM
Facility Owner: Sun Oil Company
Facility Address: Delaware Ave. and Green Streets
Marcus Hook, PA 19061

Facility Telephone 215-447-1000

Facility ID Number:

UST Inspector(s): Carol A. Febbo (EPA), Michael Butler (DE)

Addendum to Inspection Report Submitted April 27, 1992:

I received the additional information that was requested at the April 14th inspection. This information consists of updated notification forms for USTs located at Sun's Refinery and Auto Lab. There are 4 USTs in the refinery and 13 at the auto lab. Also the sheets for interstitial monitoring were completed.

The only information that the notifications are lacking is a signature under Section V. and Section VII(14). I will be contacting David J. Kistler and requesting that these pages be resubmitted.

Carol A. Febbo
Inspector's Signature

5-14-92
Date

X. UNDERGROUND STORAGE TANK INSPECTION REPORT
SUN MARKETING AND REFINING COMPANY
MARCUS HOOK, PENNSYLVANIA

Date of Inspection: Tuesday, April 14, 1992
Time: 9:00 AM
Facility Owner: Sun Oil Company
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Facility ID Number:

UST Inspector(s): Carol A. Febbo (EPA), Michael Butler (DE)

Background:

EPA and Delaware staff received safety training and a plant tour on April 2, 1992. The purpose of the plant inspection was to inspect underground storage tanks (USTs) and their associated equipment at the facility. This inspection was part of an agency-wide multi-media effort at Sun's Marcus Hook Facility. On the morning of April 14, 1992 EPA's UST inspector reviewed federal and state UST notification forms in the presence of Dave Kistler and Chuck Barksdale of Sun Oil Company and also discussed the general nature of the inspection. Also present were Jim Gouvas and Dave O'Brien of the Environmental Services Division. Jim and Dave accompanied the EPA and State inspector at the site.

Narrative:

The inspectors observed 16 USTs at the facility:

Refinery:

1 - 6,000 gal.	1/80	Gasoline	
2 - 6,000 gal.	1/80	Gasoline	
3 -10,000 gal.	1/92	Diesel	Inter. Monitoring
4 - 1,000 gal.	1/81	Kero	
5 -10,000 gal.	1/59	Heating Oil (used to heat facility where stored.)	

R & D Facility

1-5	4,000 gals.		Gasoline	
6-11	2,000 gals.		Gasoline	
12-13	3,000 gals.	1/90	Methanol	Interstitial Monitoring

Conclusions/Recommendations:

The inspectors found the concrete pads to be settling around the two 6,000 gallon gasoline pumps at the Refinery. This could indicate leakage from the tanks and settling problems. Also, the Air Program should be advised that there was no Stage II vapor recovery on these tanks. There also was a very strong odor of gasoline in this particular area.

The EPA inspector gave Sun personnel an Interstitial Monitoring Sheet to fill out for USTs # 3, 12 and 13. Also, the inspector requested that Sun personnel complete an updated Notification for Registration of Underground Storage Tanks and submit it to PADER and to the EPA, Region III office. As of this date, the notifications are in a piece meal fashion. Also, copies of closure reports and sample analyses were requested for USTs # 12 & 13. EPA is awaiting this information.

The EPA inspector advised Sun personnel that UST #5 which contains heating oil is rather old (installed 1/59) and that they may want to consider a precision test.

Further determination will be made upon receipt and review of the requested material.

Paul A. Debbo
Inspector's Signature

4-27-92
Date

IX. FIFRA INSPECTION APRIL 10, 1992

The Pesticides program has reviewed the attached completed inspection report from the Pennsylvania Department of Agriculture, Bureau of Plant and Industry. At this time there does not appear to be any FIFRA violations. However, there is some concern regarding a possible violation(s) with pesticides export requirements. The PDA Inspectors are in the process of further documenting the export of Sun's pesticide product "SUN SPRAY OIL" to non-english speaking countries.

A physical sample of "SUN SPRAY OIL" that was obtained during the inspection is in the process of being analyzed at a pesticide formulation laboratory. The purpose of the analysis is to screen the sample for any possible contamination or adulteration. As soon as the results are received, a final determination can be made if any FIFRA violations exist.

In the attachment section are the completed forms from the Pennsylvania Department of Agriculture, Bureau of Plant and Industry.

XI. TSCA/PCB Inspection Report

PCB Equipment

At the time of the subject inspection, the facility had only one transformer which contained PCBs in excess of 50 PPM (51 PPM). This transformer, a General Electric transformer, Serial No. F-958183 had been retrofilled in 1991. The EPA representative obtained copies of PCB test results from October, 1991, indicating the transformer dielectric fluid contained 59 PPM PCBs and from March, 1992 indicating the fluid contained 51 PPM PCBs (See Attachment No. 4). According to facility personnel, all other PCB and PCB Contaminated Transformers have either been retrofilled and reclassified as Non-PCB or removed from service and shipped off site for disposal.

At the time of the subject inspection, the facility did not have any PCB Capacitors or PCB Hydraulic/Heat Transfer Systems.

PCB Records

PCB Transformer Inspection Records

Prior to retrofilling or removing from service for disposal all PCB Transformers (>500 PPM), the facility representative (Chuck Barksdale) stated that all of their PCB Transformers were inspected according to a Preventive Maintenance Schedule (See Attachment No. 9).

While reviewing the PM schedule it was noted that the frequency for transformer inspections was once per year.

All of the facility's PCB Transformers had been tested for PCB content and the test results indicated that none of the transformers contained over 60,000 PPM PCBs (See Attachment No. 2, SunOhio Transformer Oil Summary, March, 1981). Based on the test results it was determined that only annual inspections were required for the facility's PCB Transformers.

Although the facility did maintain a copy of the Preventive Maintenance Schedule indicating the inspection requirement for the PCB Transformers, there were no records available at the time of the subject inspection to indicate that the PCB Transformer inspections were actually conducted. The facility representative (C. Barksdale) stated that the inspections were conducted by the facility's electrical maintenance group and that they probably had some type of records documenting the annual inspections.

The facility personnel had also maintained a record book which contained entries documenting PCB Transformer inspections from 1978 to October, 1981. The EPA representative obtained copies of selected pages from the record book (See Attachment No. 6).

PCB Transformer Fire Registration

During the subject inspection, the EPA representative questioned facility personnel regarding the registration of their PCB Transformers with fire response personnel. The facility representative produced a copy of a memorandum dated November 1, 1985, indicating that the facility's fire brigade was notified of the location of the PCB Transformers at the refinery. The memorandum included a blueprint of the refinery complex indicating the location of the PCB Transformers (See Attachment No. 3).

The EPA representative also obtained a copy of a memorandum dated May 5, 1986, which indicated that a follow-up inspection was conducted to ensure that all PCB Transformers were being inspected and that the fire department had been notified regarding the location of the PCB Transformers (See Attachment No. 7).

PCB Annual Reports

During the subject inspection, the EPA representative reviewed the facility's annual reports from 1986 to 1990.

Each of the reports utilized the same format for reporting the status of the facility's PCBs and PCB Items.

Specifically, Section I is a listing of PCB Equipment (100%) in service at the end of the calendar year, Section II is a listing of PCB Transformers (> 500 PPM) in service at the end of the calendar year, Section III is a listing of PCB Contaminated Transformers in service at the end of the calendar year and Section IV describes any actions taken during the calendar year regarding the reclassification of transformers and/or disposal of PCBs. Attached to each of the annual reports is any documentation (manifests, certificates of disposal, analytical results, etc;) associated with the reclassification of transformers and/or the disposal of PCBs.

While reviewing the annual reports, the EPA representative noted the following deficiencies:

<u>1986</u>

In Section III of the report (PCB Contaminated Transformers in service at the end of the calendar year), transformer no. P-122 is listed twice. It appears that the two listings are actually two different transformers based on the gallons of fluid and the PCB concentration reported in the two listings. However, at the time of the subject inspection, facility personnel could not explain the discrepancy.

It was also noted that the facility incorrectly determined the weight in kilograms of the PCBs in PCB Items. It appears that the reported weight (kg) of the PCB fluids was determined on a percentage basis. The weight should be reported as the total

weight in kilograms of the fluid in the PCB Items. This discrepancy was also noted in the 1987, 1988, 1989 & 1990 Annual Reports.

1987

In Section II of the report (PCB Transformers (>500 PPM) in service at the end of the calendar year), the totals for gallons and weight are the same as the 1986 report, however one PCB Transformer was removed in 1987.

It was also noted that the total summation of gallons and kilograms from Sections I, II, & III are incorrect due to the error noted in Section II.

1988

The total gallons and kilograms from Section II of the 1987 report were carried over to the 1988 report, therefore the total summation of gallons and kilograms from Sections I, II, & III of the 1988 report are incorrect.

Copies of the 1986, 1987, 1988, 1989 & 1990 Annual Reports are attached to this report (See Attachment No. 1).

PCB Storage

According to the facility representative (Chuck Barksdale), the facility does not have a designated storage for disposal area. Mr. Barksdale further stated that to his knowledge, PCBs removed from service for disposal had never been stored on site for more than thirty days.

Visual Observations

During the subject inspection, the EPA representative accompanied by facility personnel toured the subject facility to observe the one in service PCB Contaminated Transformer and other randomly selected transformers. The observations noted during the tour are as follows:

No. 8-C Sub Switch Area

Four General Electric Transformers are located on a concrete pad in this area. One of the transformers, General Electric, Serial No. F-958183 was identified as the one transformer containing greater than 50 PPM PCBs (51 PPM). The transformer is labelled with a PCB ML label and a SunOhio label indicating greater than 500 PPM PCBs. According to facility records, at one time, this transformer did contain 940 PPM PCBs (See Attachment No. 2). The transformer was retrofilled and the most recent analysis indicated that it contained 51 PPM PCBs (See Attachment No. 4). The transformer nameplate indicated that the transformer contained 146 gallons of 10-C oil.

The other three transformers located in this area were marked with labels indicating that the transformers contained less than 50 PPM PCBs. The nameplates on the transformers indicated that each of the transformers contained 69 gallons of 10-C oil.

No leaks were observed on or around any of the four transformers.

Old Mens Bldg. Sub

This area contained three Allis Chalmers transformers (Nos. P-29, P-30, & P-31). The transformers are located on a concrete pad enclosed by a fence. At the time of the inspection, the EPA representative noted dark stains on both the concrete pad and the base of the transformers. The transformers did not appear to be actively leaking. According to facility records each of the three transformers contained less than 50 PPM PCBs (See Attachment No. 2). The three transformers were marked with SunOhio labels indicating less than 50 PPM PCBs.

Pumphouse S-10 Hewes AV

This area contained three transformers (Nos. P-48, P-49, & P-50). The transformers are located on a concrete pad enclosed by a fence. The EPA representative noted oil stains on the transformers and on the ground and concrete pad (approximately 10 sq. ft. around the transformers). The facility's records indicated that each of the three transformers contained less than 50 PPM PCBs (See Attachment No. 2). The three transformers were marked with Sun Ohio labels indicating less than 50 PPM PCBs.

Ethylene Complex, Ethylene Blvd. and Avenue B, (old warehouse bldg.)

The EPA representative observed an area outside of an old warehouse building in the ethylene complex. This area contained one out of service transformer and two out of service rectifiers.

The transformer, a Pennsylvania Transformer, Serial No. C-00256-3-1, was stored on two wooden timbers. The base of the transformer and the wooden timbers were stained with oil (See Photograph Nos. 1 & 2).

Approximately twenty feet from the transformer, the EPA representative observed two out of service rectifiers. The rectifiers, Serial Nos. C-101 201B & C-101 201A, were both stained with oil.

The EPA representative questioned facility personnel regarding the status of the three units. The facility representative (Chuck Barksdale) stated that he did not know the current status of these units, however, the facility did have analytical results indicating that these units contained less than 50 PPM PCBs. A copy of these results are attached to this report (See Attachment No. 8).

XII. SPCC Inspection Report

The SPCC Inspection and SPCC Plan review conducted at the subject facility revealed numerous discrepancies within the context of the SPCC Plan, its implementation at the facility, and violation(s) of 40 C.F.R. 112. The discrepancies observed during the inspection are described in attachment "A". Violations of 40 C.F.R. 112 are cited and highlighted within the context of this report. Although all of the discrepancies may not be violations, EPA should strongly suggest that the owners or operators of the subject facility address them appropriately.

Review of the SPCC Plan reveals that the format used by the subject facility does not follow the sequence required and outlined in 40 C.F.R. 112.7. EPA generally does not preclude owners or operators from using SPCC Plan formats which may differ slightly from the sequence prescribed in the regulations as long as the minimal requirements of the regulations are adequately discussed in the SPCC Plan. **Because the format and <u>the content</u> of the subject facility's SPCC Plan deviated significantly from EPA's regulatory requirements, it could be considered to be a violation of 40 C.F.R. 112.7.**

40 C.F.R. 112.7 requires that the SPCC Plan be a carefully thought-out plan. Section 1.1 of the subject facility's SPCC Plan states that the "Plan was prepared after reviewing the recently enacted Pennsylvania Senate Bill 280, the Storage Tank and Spill Prevention Act." It may be noted that specific references to State rules, regulations or guidelines are required to be incorporated into the SPCC Plan by 40 C.F.R. 112(e), but the State has no authorities regarding the preparation, certification, and implementation of the SPCC Plan. Perhaps if the Plan was prepared after reviewing 40 C.F.R. 112, it may have been a more adequate SPCC Plan.

Review of the SPCC Plan for the subject facility revealed a violation of 40 C.F.R. 112.7(b) which requires a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each major type of equipment failure.

Section 1.3 of the Plan states that "all transfer lines that are removed from service for an extended period of time are securely blanked off." Section 5 of the Plan includes a similar statement. Inspection of the facility revealed a number of unblanked piping or pipelines (see attachment A), therefore, **this may be considered a violation of 40 C.F.R. 112.3 for failure to implement the SPCC Plan and a violation of 40 C.F.R. 112.7(e)(3) which requires pipelines not in service for extended periods of time to be capped or blank-flanged and marked as to origin.**

Section 1.4 of the Plan is mostly dedicated to hazardous material training. The requirements of 40 C.F.R. 112 only addresses oil, not hazardous materials. The SPCC Plan, therefore, should only address oil, or at the minimum, clearly delineate the criteria

required by the regulations.

Section 2.1 of the Plan states that "Middle Creek is a small stream that originates in the refinery and is dammed at its lower end by an interceptor basin that is capable of holding back a spill of up to 10,000 barrels of oil." 10,000 barrels equates to 42,000 gallons. 10,000 gallons of oil into an inland waterway constitutes a major oil spill. 40 C.F.R. 112 is EPA's Oil Pollution Prevention Regulation, the major focus of which is to prevent discharges of oil from entering the navigable waters of the United States. Middle Creek is a navigable water of the United States. Although it may be unconscionable for a facility to utilize the navigable waters of the United States as a containment structure or system, it may be beyond the ability of the Regional SPCC Program to cite this as a violation of 40 C.F.R. 112 if other EPA programs consider this to be a permitted activity.

Section 2.2 of the Plan states that "stormwater accumulating within the diked storage areas is released through normally closed valves." Although this is consistent with the requirements of 40 C.F.R. 112.7(e)(1), it is unclear (both from information obtained during the inspection and the review of the Plan) whether records are retained by the facility as required by 40 C.F.R. 112.7(e)(2)(iii)(D). Furthermore, the inspection revealed gate valves left open (see attachment A). **This may be considered a violation of 40 C.F.R. 112.3 for failure to implement the SPCC Plan and a violation of 40 C.F.R. 112.7(e) for failure to seal bypass valves closed, inspect run-off rainwater, reseal the bypass valve following drainage, and/or maintain adequate records of such events.**

Inspection of the facility indicated that the Lube Oil Service Area did not appear to have sufficient secondary containment as required by 40 C.F.R. 112.7(c). EPA personnel (Kevin Koob, On-Scene Coordinator) who conducted the inspection indicated that this may be a violation (see attachment A). However, Section 3.1.1. of the Plan includes a discussion of a diversionary system which appears to be adequate to return spilled oil to the facility.

Inspection of the facility indicated that the secondary containment for some tank installations may not be sufficiently impervious to contain spilled oil (see attachment A). For example, many containment areas had significant amounts of oil, oil-stained soil, open valves, drains, manholes and other discrepancies (see attachment A). Section 3.1.1 of the Plan states that "the dikes and containment are constructed of concrete or imported gravel over native soils." Concrete may not be impervious to oil unless certain additives, coatings or waterstops are incorporated into design process when utilizing it in the construction of secondary containment systems. Gravel, whether imported or not, is not impervious to oil. Native soils are generally not impervious to oil. Therefore, **this may be considered a violation of 40 C.F.R. 112.7(e)(2) which requires diked areas to be sufficiently impervious to oil. The accumulation of oil observed in diked areas may also**

indicate a violation of 40 C.F.R. 112.7(e)(2) which requires visible oil leaks which are sufficiently large enough to result in an accumulation of oil within the diked areas should be promptly corrected. EPA expects that the corrective action would include the removal and proper disposition of the accumulated oil from within the diked areas.

Section 3.1.2. of the Plan states that "Bunker C fuel oil is stored in aboveground storage Tank 813... located adjacent to a stormwater inlet and does not have secondary containment." This may be a violation of 40 C.F.R. 112.7(c) which requires appropriate containment and/or diversionary structures and also may be a violation of 40 C.F.R. 112.7(e) which requires all bulk storage tank installations be constructed so that a secondary means of containment be provided for the entire contents of the largest single tank plus sufficient freeboard for precipitation.

Section 4.2 of the Plan discusses Ships and Barges which are not regulated under 40 C.F.R. 112. Once again, because the format and content of the subject facility's SPCC Plan deviated from EPA's regulatory requirements, it could be considered to be in violation of 40 C.F.R. 112.7 which requires the SPCC Plan to be carefully thought-out.

Section 5 of the Plan states that "an extensive, long-range project is underway to convert all buried pipelines in the vicinity of navigable waterways to aboveground installations." This may be considered a change which materially affects the facility's potential for discharge of oil into or upon the navigable waters of the United States. Therefore, this may be a violation of 40 C.F.R. 112.5(a) requires that the SPCC Plan be amended in accordance with § 112.7 and that the amendment be fully implemented no later than six months after such change occurs.

Attachment 1 of the Plan provides a pollution incident history from January 27, 1973 through November 14, 1989. Many of the spills described are transportation related or hazardous materials, and therefore, not applicable to an SPCC Plan. Furthermore, 40 C.F.R. 112.7(a) requires a written description of each spill for the time period within twelve months of the effective date of the regulation. The effective date of the regulation was January 11, 1974, therefore, facilities subject to the regulation should provide a description of the spills for a time period from January 11, 1973 to January 11, 1974. Failure to accurately provide this information may be considered a violation of 40 C.F.R. 112.7(a).

Attachment 2 of the Plan provides a " Hazardous Substances Reportable Quantities" list. Hazardous materials are not regulated under 40 C.F.R. 112, and therefore, such a list may not be appropriate as an integral part of a SPCC Plan. Once again, because the format and content of the subject facility's SPCC Plan deviated from EPA's regulatory requirements, it could be considered to be in

violation of 40 C.F.R. 112.7 which requires the SPCC Plan to be carefully thought-out.

Attachment 3 of the Plan provides a "Storage Tank and UST Survey." The itemized description of tanks in this attachment includes tanks which contain materials other than oil. Because 40 C.F.R. 112 only addresses oil, the inclusion of these other materials may not be appropriate as part of the SPCC Plan. Once again, because the format and content of the subject facility's SPCC Plan deviated from EPA's regulatory requirements, it could be considered to be in violation of 40 C.F.R. 112.7 which requires the SPCC Plan to be carefully thought-out.

SUN OIL MARCUS HOOK REFINERY
SPCC INSPECTION

Tank #	Discrepancy
001	Pipeline sleeve through containment open in way of E. side. Significant amount of oil and stained soils noted inside of containment area.
002	Significant amount of oil and stained soils noted inside containment area.
003	3" pipes (2) in way of overhead piping open through N.W. side of containment.
007	Unblanked 12" pipeline found extending out of the S.W. containment wall
009	Gate valve on N.E. side of containment open allowing oil water flow from adjacent containment. Significant amount of oil stained soil present.
010	Vertical unblanked 8" pipeline present in way of transfer lines.
011	Gate valve on 12" containment wall through piping open.
012	Unblanked pipeline line found extending out of the S.E. containment wall.
151	Drains present in way of S.and N.W. sides of tanks with out evidence of securing valve. Pipe through pipe in containment in way of access road.
200	Excavation within containment (6'x6') filled with oil. Manifold system N.E. corner in way of Rail Road Tracks covered with oil. Containment appeared to be inadequate with regard structural integrity.
202	Drain pipe on south side of tank in way of manifold not provided with cut off valve.
206	Unblanked pipelines found extending out of S. side of containment.
209	Significant amount of oil and stained soil found in containment.

213	Significant amount of oil and stained soil found in containment.
235	Open manhole noted inside containment.
237	Through pipe into adjacent containment area present without benefit of a cut off valve.
243	Pipeline sleeves through containment open. Unblanked 6" line found extending from containment on N.E. side.
244	Pipeline sleeve on S.E. corner of containment missing.
247	Pipeline sleeves through containment on N.E. corner open.
249	Pipeline sleeves S.E. side of containment found open. (Post and Lube Oil Road)
254	Two unblanked pipes found extending from W. side of containment.
255	Containment is not defined.
265	Containment integrity may be adversely affect by access road to interior of the containment area.
352	Significant amount of oil stained soil within the containment.
357	Discarded piece of monitoring well head piping inside of the containment. Is there a monitoring well present?
354	Significant amount of oil stained soil present inside of containment.
451-455	Drains present in way of all tanks. No evidence of cutoff valves to maintain containment integrity.
454	Pipeline sleeve through E.side of containment open.
527	Unblanked 8" line found extending from containment on S.W. side.
609	Pipeline sleeve through E. side of containment open.
390	12" pipeline open through containment at S.W. corner.

Containment servicing the Lube Oil tanks is not adequate from a visual inspection standard. A detailed Civil Engineering evaluation of the present containment is necessary to allow for a conclusive statement with regard to its adequacy for compliance with SPCC regulations.

The Middle Creek conveyance system has been identified as the ultimate receptor of all onsite discharges of oil. The size of the facility is of such geographic magnitude that a catastrophic discharge from a single tank would not threaten the Delaware River unless the discharge were to involve one of the Lube Oil tanks in proximity to the Delaware River side of the facility. The Lube Oil Tank Farm does not appear to be in compliance with the secondary containment requirements of the SPCC regulations as the berm is either insufficient in height or none existent is many areas. Further investigation is warranted to determine the extent of noncompliance which exists.

The facility is operated on a 24 hour basis and most tanks are subjected to some type of periodic visual inspection during each shift. If Middle Creek were not considered to be a diversionary structure then the facility would not be considered to be in substantive compliance with the SPCC regulations.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Sun-Marcus Hook Wetlands Inspection DATE: 5-12-92

FROM: William J. Hoffman (3ES42)
Wetland Enforcement Coordinator

TO: Jim Gouvas (3ES11)
Dave O'Brien

On April 20, 1992, I inspected three areas at the above referenced site for potential unpermitted dredge or fill discharge activities as a result of a preliminary screening of the facility (an April 2, 1992 plant tour and a review of in-house color infrared aerial photography). The three areas were: 1) the 3-dock area, 2) Middle Creek, and 3) PPL/crude storage area. The result of my inspections are as follows:

1) The 3-dock area - this area (landward of the river) contains no wetlands under current methodology for determining Federal jurisdiction. Further, the existing facilities appear to have been constructed five or more years ago. Therefore, no action is warranted.

2) Middle Creek - this creek was impounded at the solid waste treatment plant approximately 20 years ago according to company officials (prior to regulation under Section 404). This structure may have required a Section 10 permit (Rivers & Harbors Act), however, which is administered and enforced by the Corps of Engineers. I have alerted the Corps and they will follow up on this permit issue. This facility was also designated as a RCRA hazardous waste surface impoundment in September of 1990 according to plant officials. Provided the creek has a drainage area greater than 5 square miles, any channel work or bank stabilization greater than 500 feet in length that has taken place would require authorization from the Corps, and a Demand for Information (308 letter) directing the company to produce documentation of such authorization would be appropriate, especially in the tidal areas downstream of the dam. I have asked the Corps of Engineers to provide me with a description of any permits issued to the facility in the last 5 years.

3) PPL/crude storage area - fill activity was evidenced in a wetland area along a tributary to Naaman Creek. However, the company produced a joint COE/DER permit application for this work and a letter from the state indicating that they had waived the requirement for a state permit. This area was above the headwaters and subject to nationwide permit. The action by the state, therefore, would mean no action is warranted on our part. I have also asked the Corps of Engineers to provide me with information regarding any action they may have taken on the application.

In sum, the only area with which unpermitted Section 404 involvement may be relevant is the channelization of Middle Creek. Prior to proceeding, however, drainage area of the creek and previous Corps of Engineers involvement must be examined. I will investigate these issues further in the next two weeks.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Sun-Marcus Hook
Multimedia Inspection

DATE: 5-15-92

FROM: William J. Hoffman (3ES42)
Wetland Enforcement Coordinator

TO: Jim Gouvas (3ES11)
Dave O'Brien

I have reviewed the U.S.G.S. topographical map for Marcus Hook to evaluate if Middle Creek drains a five square mile or greater area. The map shows this stream to be intermittant a short distance above the dam and less than three miles in length from its confluence with the Delaware River. Further, there are several other streams in close proximity (indicating a drainage divide). My conclusion is that nationwide permit 26 would apply for dredge and fill activities in Middle Creek in nontidal sections above the dam, provided a Section 401 Water Quality Certification has been acquired from the State. Therefore, no enforcement action should be taken for any channel work in this area pursuant to Section 404. For tidal sections below the dam, bank stabilization projects greater than 500 feet in length would require Section 404 permits. Review of the U.S.G.S quad indicates that the channelization (bank stabilization) of this section of Middle Creek was performed prior to development of the map (probably when the dam was constructed in 1970). Therefore, no enforcement action pursuant to Section 404 is warrented here either.

Should you have any questions, call me at 597-3361.

XIV. RCRA Compliance Evaluation Inspection
Land Disposal Restriction Evaluation Inspection

Sun Refining and Marketing Company
Delaware Avenue and Green Street
Marcus-Hook, PA 19061

EPA I.D. Number PAD980550594

Date of Inspection: April 21, 1992

EPA Representative: Robert Vallandingham
Environmental Protection Specialist

Facility Representative: Charles Barksdale
Environmental Supervisor

Timothy Roy
Senior Environmental Specialist

XIV. Resource Conservation and Recovery Act (RCRA

1. Facility Description

The Sun Refining and Marketing Company, Marcus Hook facility processes crude oil producing liquified petroleum gases, motor fuels, lubricating oils and petrochemicals.

Permit Status

The facility has two RCRA EPA identification (ID) numbers for their solid waste management purposes. The production refinery is a generator with >90 day storage and a TSD facility with both Part A interim and Part B permit status and an ID Number PAD980550594. The facility's research and development (R&D) section is a small quantity generator with <90 day storage and has an EPA ID No. PAD080790991.

2. Waste Generator

(a) The refinery's primary hazardous waste includes listed petroleum refinery process sludges from maintenance and periodic cleaning of process equipment and oil/water separator treatment units. The types of waste sludges include the following:

K050 - Heat exchanger bundle cleaning sludge

K051 - API Separator Sludge

F037 - Oil/water solids separation sludge

F038 - Secondary (emulsified) oil/water solids separation sludge. None generated as yet, but probably will be in the future.

Other hazardous waste includes characteristic (toxic characteristic (TC)) and listed waste from the petroleum blending processes and general maintenance/cleaning.

(b) The research and development section generates petroleum naphtha solvent from cleaning processes and occasionally small quantities of lab packs from R&D projects.

3. Waste Treatment/Storage/Disposal

(a) Treatment

The facility provides on site treatment for F050 and F051 generated petroleum process sludges and contaminated wastewaters. Treatment consists of waste oil recovery via oil/water separators, pH adjustment, and filter press/sludge dewatering for oil and water removal. Off site treatment of generated characteristic and listed hazardous waste is provided by hazardous waste treatment and disposal contractors.

Spent Petroleum Naphtha solvent recovery/recycling is completed off site under a contract agreement with Safety-Kleen Corporation. (Manifest Exhibit A)

Spent sulfuric acid is sent off site to produce virgin sulfuric acid. This material is excluded from being a solid waste as provided in 40 CFR 261.4(a)(7) and PA Code 25.261.4(18), 261.6(a).

Spent caustic/sodium hydroxide solution is manifested off site to Texas and beneficially reused as a raw material to recover cresylic acids and paper processing chemicals. This material is excluded from Federal RCRA regulations,

but manifested in accordance with PA Code 25: 75.261. (Manifest Exhibit B)

(b) Storage

Hazardous waste storage/accumulation is managed on site in lab packs, drums, tanks, and truck transport type roll on containers. Storage is managed primarily for <90 days as provided in 40 CFR Part 262.34, PA Code 25.262.34.

(c) Disposal

Hazardous wastes including both characteristic and listed waste types generated from general process and equipment maintenance, R&D projects and spill residues, are manifested for off site disposal at hazardous waste treatment/disposal contractors providing treatment technologies and standards as required for land disposal restrictions, (40 CFR 268).

(1) K050 Wastewater

Contaminated wastewater containing low levels of benzene, (D018) Toxic Characteristic (TC) hazardous waste, is generated from process units producing (K050) heat exchanger sludge and goes to oil recovery separators that discharge to Middle Creek, a wastewater conveyance impoundment. Final treatment is provided with a oil/water separator and pH adjustment and discharged under a pretreatment permit to the local POTW, i.e., Delcora Wastewater Treatment Plant. Non contact cooling water and storm water is discharged just

below the impoundment dam on Middle Creek and flows to the Delaware River with an NPDES permit.

(2) K051 API Separator Sludge

The K051 API separator sludge/filter cake is disposed off site in a landfill in Pennsylvania as a de-listed hazardous waste. The waste was delisted June 15, 1983 by the Pennsylvania Department of Environmental Resources on the basis that it does not contain the listed constituents hexavalent chrome and lead in concentrations greater than regulatory levels. The facility representative stated that analysis is completed on an annual basis. Copies of the original analysis and recent analytical data was requested and is included with this report (Exhibit D). API separator sludge is mixed with a lime slurry and pumped to a filter press for oil/water removal. The resulting wastewater is recirculated back to the slop oil system. The filter cake is disposed of in an off site landfill. A newly listed petroleum refinery waste, i.e., oil/water/solids separation sludge F037 is disposed off site in a landfill in Ohio. It is manifested and includes a certificate of disposal (Exhibit C). The waste is currently not regulated by land disposal treatment standards. Regulations regarding land disposal

prohibitions for the waste was expected to be in effect March 1992.

4. RCRA Permits

(a) Solid Waste and Container Management

The Marcus Hook Refinery has a Part B permit issued for their solid waste filter press treatment facility and a container management site.

(b) Middle Creek Wastewater Impoundment

The Middle Creek channel impoundment wastewater conveyance system is a natural earthen creek type swale approximately thirty feet wide and currently has Part A interim status with Part B permit submittals including Class 1, 2 and 3 replacement and closure plan modifications. Class 3 modifications was submitted to EPA in February 1992 including a closure plan. Response/action by EPA had not been received at the time of this inspection. The facility plans to submit a more detailed closure plan in the near future and to close the conveyance system when approval is obtained. The closure may be subject to a corrective action plan.

5. Corrective Action

The facility has completed a remedial facility assessment/site investigation for identifying on site solid waste management areas, i.e., landfills, sludge disposal sites to enable corrective action. The investigation was conducted by a private contractor. Findings have been submitted to EPA for response and a corrective action draft plan.

6. Tour Observations

(a) Middle Creek Impoundment

The creek's flow is restrained by a concrete barrier/dam on the facility property above the NPDES discharge of non contact cooling water and stormwater. Oil absorbent booms were placed on the creek's surface below the NPDES discharge point to contain oil sheens. An oil sheen was noted on Middle Creek at the time of the inspection, and appears to be resulting from the creek's oil soaked earthen banks. The NPDES outfall discharges into the lower section of the creek and flows to the Delaware River approximately one quarter mile downstream.

The upper portion of the creek above the dam, provides a surface impoundment and conveyance mechanism for process wastewaters contaminated with D018 Benzene and K050 heat exchanger bundle cleaning sludge. The creek/impoundment meanders thru the facility property receiving discharges from process units, oil/water separators and stormwater. The creek's bed and banks are natural earthen and contain no liner. The inspection revealed oil saturated creek banks. (Picture attached - Exhibit E). As mentioned prior in this report, a closure plan is being drafted for the creek impoundment and possible corrective action plans may be needed.

Future plans include replacing the numerous process oil/water separators (i.e., approximately eight) with

sumps pumping to a system consisting of a single oil/water separator and thermal oxidation.

(b) Solid Waste Treatment Facility

The solid waste treatment facility has Part B permit status and receives API separator sludge, a K051 listed hazardous waste. The treatment system utilizes numerous treatment tanks for mixing/blending and heating treatment processes and pH adjustments. A plate frame filter press is used for dewatering and deoiling this material. The filter cake represents a delisted waste and is landfilled off site in Pennsylvania. The resulting wastewater goes to a slop tank for further treatment, i.e., oil water separation and pH adjustment prior to discharge to the Delcora POTW. All units were operable and the facility appeared to be adequately managed at the time of the inspection. The sludge storage tank that receives the K051 waste sludge prior to treatment has a capacity of 420,000 gal. and the sludge decant tank has a capacity of 210,000 gal. The two tanks are covered and made of carbon steel. The tanks have earthen and stone berms around their perimeters Alarm systems are provided and daily inspection logs are maintained. The treatment tanks are constructed of concrete and located in a concrete impoundment providing secondary containment. No leakage was apparent. Some stains appeared on the concrete at the truck's unloading trough area. Some

minor cracks were noticed in the concrete where the trucks unload at the trough site. High level alarms are provided for the treatment tanks and daily operating logs are maintained.

(c) Container Management Site

The container management site has Part B Permit status. The site is approximately two hundred feet square, with a concrete berm and surface sloped to a collection pit and fenced for security. No containers were in storage at the time of this inspection.

7. File Review Observations

The inspection included reviewing pertinent RCRA and Land Ban recordkeeping and reporting documents as required in the Pennsylvania Code of hazardous waste management and the Code of Federal Regulations. The files/records were readily available and provided as requested.

(a) 25 PA 265.16 Personnel Training

Personnel training records appeared to be current and adequate for the training provisions including employee names, job titles, job descriptions, and training updates.

(b) 25 PA 265.31-37 Preparedness and Prevention

The Preparedness and Prevention Plan, including facility maintenance and operation standards, appeared adequate. Alarm systems, communications, fire extinguishers, water volume, access and space for personnel and emergency

equipment movement, and arrangements with local emergency authorities were maintained.

(c) 25 PA 265.51-56 Contingency Plan

The facility's contingency plan contained adequate provisions for responding to emergency occurrences, including personnel evacuation routes, emergency equipment list, local emergency arrangements and phone numbers and names of emergency coordinators. The emergency coordinators names need to be updated.

(d) 25 PA 262.23 Use of Manifest

40 CFR 268.7 Land Ban Recordkeeping

Manifests for hazardous waste transported off site for treatment/disposal were reviewed and appeared to satisfy the manifesting and Land Ban submittal requirements including notifications, certifications, treatment standards, references and disposal certificates. (Exhibits A, B, and C attached).

(e) 25 PA 265.112 Closure Plan

The facility has submitted a closure plan. A more detailed closure plan is planned to be submitted in the near future for the closure of the Middle Creek Wastewater conveyance/surface impoundment area.

(f) 25 PA 267.19 (Closure Cost Estimate)

The facility's closure cost estimate is current for 1991 and needs to be updated for adjustment of the annual inflation factor.

(g) 25 PA 267.42 Liability Insurance

The facility's liability insurance coverage appeared to be adequate. The insurance is provided by the Traveler's Indemnity Co., Hartford, Connecticut in the amount of $12,750,000.

(h) 25 PA 267.51 Self Insurance

Financial assurance is provided by a corporate guarantee and financial test thru Sun Co., Inc., 100 Matson Ford Road, Radner, PA 19087-4597.

Attachments

1. RCRA Generator Checklist
2. RCRA TSD Checklist
3. LDR Generator Checklist
4. LDR TSD Checklist
5. RCRA Tank Checklist
6. Exhibits A, B, C -Manifest
7. Exhibit D - K051 Delisting Petition and Waste Analysis data
8. Exhibit E - Picture (Middle Creek Conveyance system noting oil saturated banks)

XIII. Section 404 Wetlands Inspection Report

On April 20, 1992, three areas were inspected at SUN Co. for potential unpermitted dredge or fill discharge activities as a result of a preliminary screening of the facility (an April 2, 1992 plant tour and a review of in-house color infrared aerial photography). The three areas were: 1) the 3-dock area, 2) Middle Creek, and 3) PPL/crude storage area. The result of my inspections are as follows:

1) The 3-dock area - this area (landward of the river) contains no wetlands under current methodology for determining Federal jurisdiction. Further, the existing facilities appear to have been constructed five or more years ago. Therefore, no action is warranted.

2) Middle Creek - this creek was impounded at the solid waste treatment plant approximately 20 years ago according to company officials (prior to regulation under Section 404). This structure may have required a Section 10 permit (Rivers & Harbors Act), however, which is administered and enforced by the Corps of Engineers. I have alerted the Corps and they will follow up on this permit issue. This facility was also designated as a RCRA hazardous waste surface impoundment in September of 1990 according to plant officials. Provided the creek has a drainage area greater than 5 square miles, any channel work or bank stabilization greater than 500 feet in length that has taken place would require authorization from the Corps, and a Demand for Information (308 letter) directing the company to produce documentation of such authorization would be appropriate, especially in the tidal areas downstream of the dam. I have asked the Corps of Engineers to provide me with a description of any permits issued to the facility in the last 5 years.

3) PPL/crude storage area - fill activity was evidenced in a wetland area along a tributary to Naamans Creek. However, the company produced a joint COE/DER permit application for this work and a letter from the state indicating that they had waived the requirement for a state permit. This area was above the headwaters and subject to nationwide permit. The action by the state, therefore, would mean no action is warranted on our part. I have also asked the Corps of Engineers to provide me with information regarding any action they may have taken on the application.

In sum, the only area with which unpermitted Section 404 involvement may be relevant is the channelization of Middle Creek. Prior to proceeding, however, drainage area of the creek and previous Corps of Engineers involvement must be examined. I will investigate these issues further in the next two weeks.

Addendum to Inspection Report of April 20, 1992:

I have reviewed the U.S.G.S. topographical map for Marcus Hook to evaluate if Middle Creek drains a five square mile or greater area. The map shows this stream to be intermittent a short distance above the dam and less than three miles in length from its confluence with the Delaware River. Further, there are several other streams in close proximity (indicating a drainage divide). My conclusion is that nationwide permit 26 would apply for dredge and full activities in Middle Creek, in nontidal sections above the dam, provided a Section 401 Water Quality Certification has been acquired from the State. Therefore, no enforcement action should be taken for any channel work in this area pursuant to Section 404. For tidal sections below the dam, bank stabilization projects greater than 500 feet in length would require Section 404 permits. Review of the U.S. G.S quad indicates that the channelization (bank stabilization) of this section of Middle Creek was performed prior to development of the map (probably when the dam was constructed in 1970). Therefore, no enforcement action pursuant to Section 404 is warranted here either.

XV. AIR INSPECTION REPORT SUMMARY

The AIR inspection lasted six days at this facility. The following summary lists the dates and programs inspected on each day.

April 23/24, 1992:

A review of general QA/QC procedures used in all the Continuous Emission Monitors (CEMs) operated by the facility in Plant 12, Vacuum Distillation, and Plant 15, Gas/Gasoline Separation. The next day, Asbestos work was reviewed in the morning, followed by the inspection of Plants 15-1 and 12-3, Boiler Houses & CO-GEN Unit #8, and Plant 10-4 Fluidized Catalytic Cracker Unit (FCCU).

April 29, 1992:

Benzene: process, 8 tanks, leaks, and tags.

TAGS	ORANGE:	Benzene service

April 30, 1992:

Benzene records were reviewed.

VOC: process, tanks, leaks, and tags.

TAGS	BLUE:	Heavy (Liquid)
	GOLD:	Lites (Liquid)
	GREEN:	Vapor

May 1, 1992:

Ethylene Oxide Plant, Delaware, with Lee Randolph, DNREC. VOC review of process, leaks, and tags.

TAGS	BLUE:	Heavy
	GOLD:	Lites
	GREEN:	Vapor

VOC record review of leak checks and follow up of repairs

May 6, 1992:

Complete the remaining VOC tank inspections.

XV. AIR Inspection Report

April 23-24, 1992:

I. CEM-General Program Information and QA/QC Procedures

The company operates two different types of Continuous Emission Monitors (CEMs) at this facility: Opacity and Gaseous CEMs.

The Opacity CEM is installed on the Plant 10-4 FCCU stack. The opacity monitor is manufactured by Lear-Siegler and is model RM-41. The opacity monitor is automatically zero/spanned daily (every 24 hours). A data logger is used record and store a number of the readings. The data logger sends the stored readings to the facility main frame computer network. The main frame computer is used to calculate the PaDER required one minute averaging times. The opacity monitor also has a strip chart recorder used in recording an every 10 second reading made by the monitor. The resulting data reports produced by the main frame computer is reviewed by the facility environmental staff person, Heather Chelpaty. Any types of opacity monitor repairs, maintenance, and performance audits are done by the facility instrument group.

The Gaseous CEMs are used to monitor Sulfur Dioxide (SO2), Hydrogen Sulfide (H2S), and Oxides of Nitrogen (NOX) emissions from the various units within the facility. Plant 10-4 (FCCU) has an SO2 CEM, Heaters 15-1 and 12-3 have H2S monitors, and the CO-GEN Unit #8 has a NOX monitor. Data loggers are used to record and store the data points from each of these Gas CEMs. The data logger sends the stored data points (readings) to the facility main frame computer. The main frame computer is used to calculate any PaDER required averaging times and produce any number of reports (Excess Emission Reports). The resulting data reports produced by the main frame computer are reviewed by the facility environmental staff person, Heather Chelpaty. Any types of gas monitor repairs, maintenance, and performance audits are done by the facility instrument group.

The facility has an in place QA/QC program for Opacity and Gaseous CEMs. A QA manual has be written for the facility by a contractor, AirNova, Inc.. The QA manual has been reviewed and approved by PaDER. The QA manual has followed the recommended procedures in the PaDER CEM Manual, Appendix B. The PaDER Appendix B was tailored from the first draft of 40 CFR Part 60 Appendix F. The facility uses the control limits contained within PaDER Appendix B for all CEMs. A total system Performance Audits for all CEMs are done once per quarter. Gaseous CEMs are subjected to relative accuracy audits every two years. Any of the CEMs routine maintenances, repairs, and audits are conducted by the facility instrument shop technicians. The records of the procedures are kept by instrument shop.

SEE ATTACHED CEM CHECK SHEETS AND OPACITY AUDIT

The instrument shop technicians were interviewed by the EPA ESD Air Inspectors concerning the CEM program. The results of the interviews were satisfactory and consistent with the QA/QC program.

A. Inspection of Heaters 15-1 and 12-3

Plant Heaters 15-1 and 12-3 are subject to NSPS Subpart J-Standards of Performance for Petroleum Refineries. Both heaters have Hydrogen Sulfide (H2S) CEMs installed. Heater 15-1 CEM was installed in 1984. Heater 12-3 CEM was installed in 1988. The H2S CEMs are used to monitor the amount of H2S in the Refinery Fuel Gas (RFG). The amount of H2S in the RFG is limited to 0.1 gr/dscf or 160 ppm. Both H2S CEM probes are installed at the RFG feed line to the heater. Both H2S CEMs have the zero and span gases introduced at the monitor not at the probe.

Both Heater's CEMs were manufactured by Combustion Engineering (CE) and are model # 002A. Serial # FC-24 for 15-1 and serial # FI- 315 for 12-3. Both CEMs have undergone Performance Specification #7 (PS-7) for certification in 1991. AirNova performed the PS-7 testing for the facility. The results of the PS-7 has not been submitted to any of the regulatory agencies as of yet.

At the time of inspection the following data was obtained for the Heaters 15-1 and 12-3:

Heater #	Combustion Fuel Type	Production Rate	H2S Content of RFG
15-1	50,000 scf/day RFG and 186,000 scf/day Natural Gas	3,475 bbl/hr	1-5 ppm
12-3	263,000 scf/day RGF and 144,000 scf/day Natural Gas	3,579 bbl/hr	2 ppm

No visible emissions were observed from Heaters 15-1 or 12-3 or any of the other non NSPS heaters during the inspection.

B. Boiler House

The following are the operating parameters for the Boiler House by unit:

Unit #	Combustion Fuel	Steam Rate (lb/hr)	Visible Emissions
#1	RFG	70,000	None

Unit #	Combustion Fuel	Steam Rate (lb/hr)	Visible Emissions
#2	RFG	70,000	None
#3	RFG	70,000	None
#4	RFG	70,000	None
#5	RFG & #6 Fuel Oil- one burner	125,000	None
#6	RFG & #6 Fuel Oil- one burner	145,000	None
#7	Boiler-Not in operation		N/A
#8	17.4 Klb/hr Reformer Gas & 6.8 Klb/hr Natural Gas		230,000 68.1 klb/hr to Turbine

Unit #8 is the CO-GEN Unit (Process Steam and Electricity Via Steam Turbine).The CO-GEN Unit fires a mixture of Natural Gas and Reformer Gas (high Hydrogen content). The CO-GEN Unit produces a process steam for the facility and supplies steam to an on site steam turbine for the production of electricity. The resulting electricity is sold to PECO. The CO-GEN unit is required to monitor the Oxides of Nitrogen (NOX) ratio with a CEM. The CEM, an Omega NOX Analyzer indicated a 2.8 to 1 ratio @ 522 degree F.

The steam turbine was producing 50.3 Megawatts of electricity at the time of inspection. No visible emission were observed.

C. Plant 10-4 Fluidized Catalytic Cracker Unit (FCCU)

The FCCU was in operation at the time of inspection. The facility is required to monitor Opacity and Sulfur Dioxide emissions via CEMs at this unit. The unit's particulate emissions are controlled by an Electrostatic Precipitator (ESP). The following are the unit's operating parameters:

a. FCCU

Gas Oil-Feed Stock Input	SO2-Emission Rate Concentration	Opacity
3,725 bbl/hr or 89,400 bbl/day	Instantaneous-240 ppm 1:00-2:00 PM Hourly Average-271 ppm	Instantaneous-7.6% 1:00-2:00 PM Hourly Average 7.8% Observed VE Opacity 5-10%

b. ESP

Field #	T/R #	Volts	Kilo-watts	Amps	Kilo-volts	Milli-amps
6-A	T-0	232	003	14	31.1	60
Inlet	T-6	231	003	14	31.0	60
North	T-12	231	003	14	31.1	60
AC Volts-220	AC Amps-15					
6-B	T-0	114	0	5	29.8	26
Inlet	T-6	114	0	5	29.8	26
South	T-12	114	0	5	29.8	26
AC Volts-150	AC Amps-5					
6-C	T-0	005	0	0	0.2	18
Center	T-6	005	0	0	0.1	18
North	T-12	005	0	0	0.1	18
AC Volts-0	AC Amps-0					
6-D	T-0	242	005	23	37.5	112
Center	T-6	240	005	22	37.5	106
South	T-12	243	005	23	37.4	114
AC Volts-240	AC Amps-22					
6-E	T-0	OFF				
Outlet	T-6	OFF				
South	T-12	OFF				
AC Volts-OFF	AC Amps-OFF					
6-F	T-0	OFF				
Outlet	T-6	OFF				
North	T-12	OFF				
AC Volts-OFF	AC Amps-OFF					
6-G	T-0	208	003	19	24.9	126
Inlet	T-6	206	003	19	24.5	124
North	T-12	207	003	19	24.9	126
AC Volts-220	AC Amps-20					
6-H	T-0	0	0	0	0	0
Inlet	T-6	0	0	0	0	0
South	T-12	0	0	0	0	0
AC Volts-0	AC Amps-0	Field is Down				
6-I	T-0	206	003	019	27.0	146
Inlet	T-6	209	003	020	27.2	150
Center	T-12	208	003	020	27.1	148
AC Volts-210	AC Amps-20					

Field #	T/R #	Volts	Kilo-watts	Amps	Kilo-volts	Milli-amps
6-J	T-0	202	002	015	29.7	92
Inlet	T-6	202	002	015	29.7	94
Center	T-12	203	002	015	29.7	94
AC Volts-190		AC Amps-40				
6-K	T-0	170	002	19	22.4	176
Outlet	T-6	171	003	19	22.5	176
Center	T-12	171	003	19	22.6	176
AC Volts-180		AC Amps-2				
6-L	T-0	004	0	001	0.2	0.0026
Outlet	T-6	004	0	001	0.2	0.0026
Center	T-12	004	0	001	0.2	0.0026
AC Volts-0		AC Amps-0				
6-M	T-0	146	003	29	29.9	196
Outlet	T-6	146	003	28	30.0	196
North	T-12	146	003	28	29.9	196
AC Volts-150		AC Amps-45				
6-N	T-0	174	004	29	37.3	210
Outlet	T-6	174	004	29	37.4	206
South	T-12	173	004	29	37.2	208
AC Volt-190		AC Amps-45				

April 24, 1992

II. **ASBESTOS**

Previous to this inspection and review, I had discussed any asbestos removal with Harold Rowland, OSHA inspector. He told me that during their inspection, they came across only one small area of active asbestos removal. They observed what was being done and did not find any problems.

On April 8, 1992, outside of Bldg. 156, near the Ethylene Plant area, two (2) 10 yard dumpsters were observed with warning signs "ASBESTOS" on the outside. Yellow bags with asbestos labels were seen inside of the dumpsters. An inspection of the bags showed them to contain asbestos, they were double bagged and wet on the inside. We were told this is a temporary storage area for the asbestos before it is taken to the landfill. The contractor accumulates enough bags to fill his transporter

dumpster so that he can go to the landfill with a full load.

On April 24, 1992, a review of SUN's asbestos records and 1991 removal jobs was done. The 1992 Notification letters were inspected and copies of both are attached. The letters were sent to Pennsylvania DER, Conshohocken, Penn. and Delaware DNREC, New Castle, Delaware. Both letters are dated December 3, 1991. EPA was not sent copies of this notification.

The DER letter states that an estimated removal of 80 cubic yards of asbestos during routine maintenance work and disposal at Lanchester Landfill, Lanchester, Pa. The "Asbestos Demolition/ Renovation Notification" form is attached to the letter. This is for removal from 1/1/92 thru 12/31/92.

The DNREC letter is for asbestos removal, during 1992, in the Ethylene Complex in Claymont, Del. The removal is for asbestos-containing insulation from non-scheduled work. The estimated amounts are: 260 linear feet of pipe insulation or 160 square feet of other insulation. The disposal will be at Solid Waste Authority - Northern Facility, New Castle, Del.

The following asbestos jobs were the only removal work done in 1991 at SUN Marcus Hook.

Location: Lube Service, Tank 589
Dates: Dec. 2-6, 1991
Amount: 40 linear feet and 668 square feet
Contractor: Falcon Associates

Location: Lube Service Area
Dates: Nov. 4 - Dec. 31, 1991
Amount: 5000 linear feet and 1,000 square feet
Contractor: none JOB WAS CANCELED

Location: Main Office Bldg., old Zone 1
Dates: Oct. 7 - Nov. 4, 1991
Amount: 500 linear feet
Contractor: County Insulation Co.

Location: Ethylene Complex - notified DNREC
Dates: March 22, 1991
Amount: 600 square feet
Contractor: County Insulation Co.

Location: Four Reactors
Dates: Feb. 18-22, 1991
Amount: about 1500 square feet
Contractor: Bernie Tennity, Aston, Pa.

Location: 17 Plant, pipes
Dates: Jan. 23-31, 1991

Amount: 200 feet of 2" pipe
Contractor: County Insulation Co.

TOTAL AMOUNTS FOR 1991: 740 linear feet
2768 square feet

We inquired about any asbestos removal work in 1992. There were no big jobs as listed above. There were a number of small glove bag jobs. These are mostly for "emergency repair work". We asked to see copies of this work. We were told that these small jobs are not tracked by the Environmental Office, but by the Contractor Administration Personal by the job and time sheets.

We told SUN that the yearly notification covers this small removal work, as well as the larger work, and DER, DNREC, and EPA must still be notified about these jobs. Also the total removal is constantly updated by ALL these jobs and when the totals exceed 20% of the yearly notification amounts, a revised yearly notice is required. The yearly notification only allows removal before notifying the Agencies. The removal contractor(s) should also be included on this yearly notification form. SUN should contact the Asbestos Management Section, ARTD, EPA for copies of the revised notification form and the new Asbestos regulations.

April 29, 30, May 1, and 6, 1992

III. **BENZENE - VOC - ETHYLENE OXIDE PLANTS**

A. Benzene Process Flow

Off the top of the Crude Distillation Unit, 12-3 or 15-1, the product, Wet Gas or Straight Run Gasoline, goes into the Gas/ Gasoline Separator Unit, 15-2S. Stabilized Gasoline is taken from here and fed to the BTX Reforming Unit, 17-2A, 17-UDEX. From here Benzene, Toluene, and Xylene is produced and sent to storage and/or loading. Benzene is loaded onto barges and Toluene and Xylene are loaded onto trucks. There are eight (8) benzene storage tanks which were inspected.

B. VOC Process Flow

This VOC process inspection was centered on almost all other processes in the refinery that make gasoline. The following is a brief flow process of these products.

1. Off the top of the Crude Distillation Unit, 12-3 or 15-1, the product, Wet Gas or Straight Run Gasoline, goes into the

Gas/ Gasoline Separator Unit, 15-2S. Out of this comes 2 VOC products: one is stabilized gasoline which goes onto the BTX. This is covered under the benzene process. The other is Light Straight Run Gasoline. This mixes with the Reformate from 17-1A and goes to Gasoline Blending, H-5.

2. Off the bottom of the Crude Distillation Unit, 12-3 or 15-1, the product, Gas Oil along with Reduced Crude, goes into the Catalytic Cracking Unit, 10-4. One of the products off this is Stabilized Gasoline which goes into the Gas/Gasoline Separator Unit, 15-2B. One of the many groups of products off this is Catalytic Gasoline which goes into gas blending unit H-5.

Another product off 15-2B is Butanes/Butylenes which go to the MTBE Plant, 15-6. This has two products, MTBE which goes to gasoline blending, H-5 and an other product goes to Alkylation Plant, 15-2, which then goes to Gas blending, H-5.

3. Out of the Gasoline Blending, H-5, is the various grades of gasoline, which is the final products. This goes to the many storage tanks via pipe lines.

C. Ethylene Oxide Process Flow

The products entering this plant are Methane and Ethane. The finished products are 1) Ethylene Oxide, 2) Ethylene, 3) CO2, and 4) Glycol. The methane and ethane products are derived from two separate processes in the refinery.

1. Off the top of the Crude Distillation Unit, 12-3 or 15-1, the product, Wet Gas or Straight Run Gasoline, goes into the Gas/ Gasoline Separator Unit, 15-2S. Out of this comes the Methane and Ethane which goes into the Ethylene Complex.

2. Off the bottom of the Crude Distillation Unit, 12-3 or 15-1, the product, Gas Oil along with Reduced Crude, goes into the Catalytic Cracking Unit, 10-4. One of the products off this is Stabilized Gasoline which goes into the Gas/Gasoline Separator Unit, 15-2B. One of the many groups of products off this is Methane and Ethane, which goes into the Ethylene Complex. As stated above, the finished products are 1) Ethylene Oxide, 2) Ethylene, 3) CO2, and 4) Glycol.

D. VOC Fugitive emission Program

1. Monitoring and Tagging Program

Sun has hired a contractor, Team Inc., Claymont, Del., to do the monitoring and tagging of all the VOC/Benzene/Ethylene Oxide processes. Gas lines are checked quarterly and liquid lines are checked annually. Pumps are monitored annually with an OVA

meter. One-quarter of the valves are checked quarterly with an OVA meter. A reading of ≥10,000 ppm is considered a leak. The contractor will attempt to fix any leak by tightening down the nuts, except on control valves, which are only done by the SUN Maintenance crew. If Team Inc. fixes a leak, it gets reported as a leaker and a fixed notice is sent to maintenance. The valve is considered fixed as long as the measured ppm is below 10,000 ppm. If Team cannot fix the leak, the valve is tagged and dated with component # and ppm recorded. At the end of the survey, a leak log is completed, and given to SUN maintenance, either Chuck Turner or Kirt Wibel.

This leak log list has all leakers and fixed leakers listed. Also they note the 15 day time limit on the top of the list, so that the valves get fixed within the time limit. The Maintenance supervisor will write a work order to SUN people to fix this leak. If they are too busy, the contractor might get asked to fix the leak. They get 5 days to fix the leak for the first attempt. Then within 15 days for the second attempt to complete the repair. The tags stay on for 2 months after the repair since a leaker must go 2 months without a leak to be considered fixed.

All the repairs are usually done by Unit. Team Inc. keeps in contact with maintenance as to when the leak is fixed and will try to monitor it as soon as possible after the leak is fixed, before the 15 days are up.

As stated, Control Valves are repaired by SUN Instrument Dept. because of the sensors for temperature, pressure, flow, level, etc. on these automatically operated valves. Team Inc. will monitor these, but not fix them.

If a major leak is found, SUN tries for a quick/short turn around to fix the leak. Sometimes a valve can be by-passed or taken out of service and fixed. If not, a shut down might get moved up to get the leak fixed. Otherwise, the leak goes on the Shut Down Repair List and Turn Around Report.

Flanges are not monitored with an OVA, but only a visual check.

During these checks for leaks, tags are inspected to make sure they are still attached to the valves and other components.

E. Monitoring and Tagging Record Review

This review we selected four valves which had been found as leakers and checked 1) the leak found date, 2) repair date, 3) remonitor date, and 4) ppm value remonitored. All these checks were done satisfactory. The following is a listing of the information surveyed.

Unit:	15-2Alky
Location:	Top R-1 at PDCV-4024
Tag #:	200798
Date found:	10-24-91
PPM monitored:	100,000 ppm
Repair date:	11-5-91
Remonitor date:	11-5-91
Remonitor PPM:	3,000 ppm

Unit:	15-2B
Location:	2nd LVL T-5
Tag #:	001407
Date found:	10-28-91
PPM monitored:	10,050 ppm
Repair date:	11-12-91
Remonitor date:	11-14-91
Remonitor PPM:	25 ppm

Unit:	17-2A
Location:	North side of E10 at FT 6024
Tag #:	158099
Date found:	11-25-91
PPM monitored:	10,050 ppm
Repair date:	11-25-91
Remonitor date:	11-25-91
Remonitor PPM:	50 ppm

Contractor found and repaired leak all at once, same time.

Unit:	15-2 Poly liquid
Location:	pump P-33-A
Tag #:	32009
Date found:	4-3-91
PPM monitored:	100,000 ppm
Repair date:	4-5-91
Remonitor date:	4-5-91
Remonitor PPM:	1000 ppm

F. Field Measurements-Leak Monitoring and Equipment Tagging

EPA inspectors did an audit inspection of parts of the Benzene, VOC, and Ethylene Oxide Plants. This was for leaks and tagging of valves and pumps.

a) Benzene 17 Plant-2-UDEX

EPA inspected 133 valves and pumps for leaks and tags

1) No new leaks were found. Pump 1116, leak tagged on 4/20/92 by SUN was found still leaking.

2) The record review indicated leaks and repair of two valves. These were checked and no leaks found. Valves 00289 and 00376.

3) 10 missing tags: valve below tag 0453; pump by valves 451,454,453; valve 00452 has VOC tag, but not benzene; valve below 1574; valve between 1262 and 1263; 5 valves off the bottom of V205 BTX tank.

b) VOC Plant 15, Units 2A, 2B, 2R, and 2S

EPA inspected 118 valves and pumps for leaks and tags

1) No leaks found

2) No missing tags

c) VOC Plant 12 - 3

EPA inspected 50 valves and pumps for leaks and tags

1) No leaks found

2) 2 missing tags in the area of tags 160487 to 160498. There are 2 valves without tags

d) Ethylene Oxide Plant

EPA inspected 169 valves and pumps for leaks and tags

1) No leaks found

2) 3 missing tags: 50677, 50678, and 50679. These missing tag numbers were identified because works had written these numbers on the side of the valves so that they could be replaced with the same number.

SUMMARY OF LEAKS AND MISSING TAGS

# checked	# leaks	# missing
470	0	15

G. Benzene and VOC Storage Tank Inspections

1. Benzene Storage Tanks, Internal Floating Roofs

The following is EPA tank inspection of the Benzene tanks.

Tank #	Fluid Height and Finding
618	27' no leak observed
619	Empty - no check
620	13' no leak observed
621	34 1/2' no leak observed
622	Empty - out of service, to be dismantled
623	10 1/2' no leak observed, hatch cover hinge broken
624	3 1/2' observed a 5' to 6' leak on seal along ladder side of tank
625	20' no leak observed

SUN had informed EPA that during fourth quarter 1991, a new double seal was installed on tanks 623 and 624. Tank 624 will be taken out of service shortly and they will investigate why this new seal is leaking. They also told us that when they went to investigate the leak, they found the entire seal leaking, not just in the area of the ladder. See the attached letter from Heather Chelpaty, SUN, to Walter Wilkie, EPA.

2. SUN's Benzene tank inspection by a Third Party

Tank #	Inspection Date	Condition/Comment
618	8/23/91	good
619	8/23/91	out - recommend replace
620	9/12/91	good - new seal/vapor mounted
621	8/23/91	good - double wiper
622	12/19/90	out of service
	4/29/92	to be dismantled sometime
623	4/21/91	good
624	7/12/91	good - new seal, double wiper
625	4/21/91	good - new seal, double wiper

3. VOC Storage Tank Inspection

Eighteen (18) VOC storage tanks were inspected. Of these four had External Floating Roofs: 242,252,321, and 327.

Tank #	Fluid Height and Finding
101	gap of 1" to 1 1/2", about 1' long, product is visible
234	no leak
241	6' no leak

Tank #		Fluid Height and Finding
242	Ex	38' External roof, small section of secondary seal, about 1' long, starting to pull away from wall
252	Ex	19'- secondary seal near the steps has about 18" turned out, lower part still on the wall; this should be checked since the seal is going
255		19' no leak
317		1/2 full, 5' to 6' opening in seal along the ladder
320		34 1/2' no leak
321	Ex	Empty - External roof
323		4/5 full, no leak
324		13' no leak
325		29' no leak
327	Ex	Empty, out of service, External roof
328		23 1/2' no leak observed, too full to see all around
331		almost empty, no leak
332		almost full, no leak
333		26 1/2' no leak, too full to see all around
599		22 1/2' no leak

Tank Inspection Summary:

Benzene Tanks

Internal Roofs:	Inspected:	6	Leaks: 1; Tank #624

VOC Tanks

External Roofs:	Inspected:	2	Leaks: 0
Internal Roofs:	Inspected:	14	Leaks: 2; 101 and 317
TOTAL TANKS:	Inspected:	22	Leaks: 3

NPDES

INSPECTION DATE: April 9, 1992

There are not any attachments to the NPDES Report.

General questions were asked by the inspector to determine the company representatives awareness of the other aspects of EPCRA. They were familiar with these other provisions of EPCRA. They had notified the State Emergency Response Commission of extremely hazardous substances, submitted MSDSs for chemicals at the facility to approximate agencies and submitted a completed hazardous chemical inventory, forms for all MSDS chemicals to appropriate agencies.

The Form R reports were prepared for Sun by Mr. Norman Suprenant, a contractor from ENSR Company, located in Acton, Massachusetts. Mr. Charles D. Barksdale, Jr., who reports to Mr. Gary Rabik, was the Sun representative responsible for submitting the Form Rs to EPA. Mr. Birr was the corporate environmental representative for Sun and was present to learn about the EPCRA Section 313 inspections so that other Sun refineries and chemical facilities could be better prepared for these types of inspections.

B. Facility Description

The Sun Company, Incorporated, formerly known as Sun Refining and Marketing Company, is a corporation with a diverse array of products and has oil refineries and chemical plants in Toledo, Ohio, Tulsa, Oklahoma, the island of Puerto Rico, Philadelphia and Marcus Hook, Pennsylvania. The Marcus Hook Refinery (MHR), started in 1902, operates 24 hours per day, 7 days per week, employs approximately 700 people and currently operates only two of its three crude units for a combined capacity of 165 MBPD (thousand barrels per day). The crude units are designed to process low sulfur crude and heavy gas oil. The refinery also has a 90MBPD Fluid Catalytic Cracking Unit (that receives 45% of its feed from imports) and currently operates only two of its three Catalytic Reformer Units - one with a 20MBPD capacity and the other a 30MBPD capacity.

Several other processing units include an ethylene complex and gasoline blending, alkylation, methyl-tertiary-butyl-ether, propylene, and furnace oil blending units. A lubrication service center is also on site. A simplified process flow-diagram for the refinery is shown in Attachment 13.

In addition to those process units' control room buildings, there are several buildings used for the technical and administrative staff, quality control laboratory and maintenance shops.

V. SARA Title III Section 313

This was a data quality inspection. Consequently, the purpose of the inspection was to check the accuracy of the Form Rs submitted to EPA and to make certain that no additional Form Rs were required to be completed and submitted to EPA by the facility. A SARA Title III Section 313 Summary Report for 1990, prepared by the facility, is shown in Attachment 1. This summary report lists the TRI chemical emissions from the facility to various media for the time period rom 1987 through 1990.

A review of the 1989 Form Rs and their corresponding supporting documentation was conducted for thirteen TRI chemical substances (See Attachment 9). On the basis of a plant tour and a review of the supporting documentation, the Form Rs submitted to EPA were reasonably accurate.

There were at least three Pretreater Reactors that each contained a 3.4% nickel oxide based hydrodesulfarization (HDS) catalyst. One of these reactors was located at each of the Catalytic Reformer Units (for a total of two at the Reformers) and at least one Pretreater Reactor at the furnace oil unit. A Form R had not been submitted for this above deminimus nickel oxide based HDS catalyst during any of the required reporting years. It was the contractor's understanding that since no release had occurred, a Form R was not warranted.

Subsequent to a discussion of the refinery's history and process units' description, a tour of the ethylene complex ensued. At the conclusion of the tour, we returned to the office area and continued our discussion on various process units such as the MTBE, Alkylation and BTX Reformer as a function of Form R.

VI. Closing Conference

Appropriate documents were requested by the inspector and the SARA Title III data quality inspection was concluded. A receipt for Samples and Documents was filled out at the completion of all inspection activities.

VI. Summary of Findings

j. SARA TITLE III SECTION 313

INSPECTION DATES: April 27 & 28, 1992

Sun Company, Incorporated submitted reasonably accurate Form Rs for the 1989 reporting year. The records did not show that Form Rs were not submitted for any reporting year for the 3.4% nickel-oxide lased hydrodesulfurization (HDS) catalyst situated at the Reformers' Pretreator and HDS reactors.

Although a Form R for the nickel-oxide HDS catalyst may not be required for each year, such a Form R should have been submitted when any of the above cited reactors are charged with fresh catalyst and the 10 thousand pound otherwise used threshold was met or exceeded. The contractor that hired to compile the information and prepare the Form Rs for TRI reporting was under the erroneous impressions that a Form R must have been submitted only when a release occurs.

XVI. SARA TITLE III SECTION 313 INSPECTION REPORT
92-313M-016 SIC: 2911, 2992

INSPECTION DATES: April 27-28, 1992

I. EPA Inspector

Mikal D. Shabazz
Chemical Engineer
TSCA Enforcement & TRI Section (3AT31)
(215) 597-3659

II. Facility Officials

Gary P. Rabik, Manager
Environmental Engineering
Sun Company, Inc.
(215) 447-1176

Charles D. Barksdale, Jr.
Sr. Environmental Consultant
Sun Company, Inc.
(215) 339-2215

Norman Surprenant,
Contractor
Senior Chemical Engineer
ENGR Company
Sun Company, Inc.
(508) 635-9500

Harold F. Birr
Senior Environmental Consultant
Sun Company, Inc.
(215) 977-6311

III. Purpose of Inspection

The EPCRA Section 313 inspection was part of a multi-media enforcement inspection activity and was conducted to inspect, document and verify the facility's compliance with the reporting requirements stated in 40 C.F.R. Part 372 under Section 313 of SARA Title III.

IV. Opening Conference

A. Inspection Procedure and General Information

On April 27 and 28, 1992 an EPCRA Section 313 Data Quality inspection was conducted at the Sun Refinery in Marcus Hook, PA. This inspection was part of an unannounced multi-media inspection by EPA and OSHA that had commenced approximately three weeks prior to the Section 313 inspection. The EPA inspector met with company representatives at 9:00 a.m., at which time the inspector's credentials were presented. A Notice of Inspection was also presented and explained. Mr. Rabik signed the notice and an outline of the areas to be investigated was discussed.

US EPA REGION III
UNDERGROUND INJECTION CONTROL PROGRAM
CLASS V WELL INSPECTION REPORT

Facility Name: SUN Co - Marcus Hook **Phone No.:** 215 447 1178
Address: PO Box 426 **Contact:** Charles Barksdale
Marcus Hook, PA **Title:** Sr Environmental Consultant
County: Chester County 19061-0426

GENERAL INFORMATION

Nature of Business: Refinery, petro chemicals production, gasoline, fuel oils, ethylene **Age of Facility** built in 1902
Water Supply of Facility/Community Chester Community Water Supply
Any known/suspected ground water contamination in the area? none
Any sampling of the ground water performed? none
Any State/Federal Permits?(i.e. NPDES or UST) NPDES, Air, RCRA

WASTEWATER DISPOSAL

Type(s) of wastewater disposal used (circle applicable choices)
1. (MUNICIPAL SEWER) UNDERGROUND INJECTION 2. (SURFACE DISCHARGE) PACKAGE TREATMENT SYSTEM OTHER
Describe each method of disposal and sources & characteristics of the wastewater
1. Pretreatment of process and storm water on site with discharge to DELCORA (regional industrial/municipal sewage treatment plant).
2. Storm water from non-industrial areas directly discharged to Delaware River
Any problems with the disposal system? see NPDES report

HAZARDOUS WASTE DISPOSAL

Chemicals Used By Facility (i.e. solvents, degreasers, petroleum products, lab reagents)
Numerous chemicals used in refining process and wastewater treatment plant.
Material Safety Data Sheets Available? upon
How are hazardous wastes disposed of by the facility? See RCRA report

space for facility diagram

No existing injection wells, septic systems, or infiltration galleries used for process or storm water disposal to the subsurface.

0-0081

Inspectors Signature Mark A. Nelson **Inspection Date** April 8, 1993

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Sun Company FIFRA Inspection DATE: 8-19-92

FROM: James R. Lorah 3AT32
FIFRA Enforcement Coordinator

TO: Dave O'Brien 3ES11
Environmental Services Division

Attached is a copy of the inspection report completed by the PA Department of Agriculture (PDA) Inspectors from the April inspection at Sun Company in Marcus Hook, PA.

The pesticides program has reviewed the information and at this time there does not appear to be any FIFRA violations. However, there still is some concern on our part regarding a possible violation(s) with pesticide export requirements. The PDA Inspectors are in the process of further documenting the export of Sun's pesticide product "SUN SPRAY OIL" to non-english speaking countries.

The physical sample of "SUN SPRAY OIL" that was obtained during the inspection is in the process of being analyzed at a pesticide formulation laboratory. The purpose of the analysis is to screen the sample for any possible contamination or adulteration. As soon as the results are received a final determination can be made if any FIFRA violations exist.

As soon as I receive the remainder of the above described information I will forward the results to you. If you have any questions, please call me at extension 2062.

REGION III FIFRA TRACKING FORM

REFERRAL DATA SECTION

Referral Date: / / Ref Type:_____ Origin: _____ Destination: _____ Referral Seq.:_____

Legislation: F Inspection Target: / / Ref. By:_____ Samples (Y/N):__ Request Date: / /

Reason For Insp:_____ Investigation Type:_____ 1st Inspec. Cond.: / /

Site Name:_____ Possible Violations:____ ____ ____ ____ Enf. Warranted: ___

Site Address:_____ Enf. Target: / / Enf. Issued: / / Date Closed: / /

Site City:_____ Remarks: _____

_____

Site State:_____ Zip:_____ _____

INSPECTION DATA SECTION

Inspection Date: 4/10/92 Insp. No.: F0371 Insp. Name.: HUDSON Reason for Insp.: FCA Region/State: PA

Referral Type: SR Report Rec'd: 8/10/92 File No. Assigned: F920749

Contains CBI (Y/N): N Insp./Inv. Type: SPR Facility Function: PD Fed. Facility (Y/N): N

Site Name: SUN COMPANY INC. Parent Co. Name:_____

Site Address: DELAWARE AVE & GREEN ST Parent Co. Address:_____

Site City: MARCUS HOOK State: PA Zip: 19061 Parent Co. City:_____ State: Zip:

CASE REVIEW DATA SECTION

Review Officer: DISANZO Case Screened (Y/N): __ Review Started: 8/17/92 Review Completed: 8/17/92

Action Warranted (Y/N): N Action Type:_____ Remarks: NO VIOLATION

CASE DEVELOPMENT DATA SECTION

Docket No. :_____ Dev. Officer:_____ Inv. Type: ____ Action Type: _____
Major = M Minor = N

Responsible Party Name :_____ EPA Attorney :_____

Violations:____ ____ ____ ____

Responsible Party Address:_____ Prop. Penalty:_____ Final Penalty:_____

Responsible Party City :_____ State:___ Zip:____ Case Closed: / / Paid: / /

EPA Registration Establishment No.:_____ Abatement:_____

CIVIL COMPLAINT DATA SECTION

To ORC: / / Issued: / / Withdrawn: / / Resp. Due: / / Resp. Rec'd: / /

Conf 1 Held: / / Conf 2 Held: / / We Sign CAFO: / / Accl. Decision: / / Default Order: / /

NOW / SCURO DATA SECTION

To ORC: / / Issued: / / Resp. Due: / / Resp. Rec'd: / / Vacated: / /

Sun Refining and Marketing Company
P O Box 426
Marcus Hook PA 19061-0426

May 26, 1992

Mr. James Hudson
Pennsylvania Department of Agriculture
Bureau of Plant and Industry
Route 113
Creamery, PA 19430

Dear Mr. Hudson:

Enclosed is the information you requested during the April 10, 1992 audit of Sun's Marcus Hook Facility. The information enclosed consists of a Sun Company, Inc. 1991 Annual Report and export paperwork from one shipment of Sunspray Ultrafine oil to Australia.

Please contact me at (215) 339-2215 if you have any questions or require any additional information.

Very truly yours,

Charles D. Barksdale Jr., P.E.
Senior Environmental Consultant

Customer Invoice

Sunoco Overseas, Inc.
1801 Market Street
Philadelphia, PA 19103
Telephone-(215) 977-3000 Telex: 845259

Invoice Number
910145

ROBERT BRYCE & CO. LTD.
P.O. BOX 169
BRUNSWICK VICTORIA
AUSTRALIA 3056

Account Number	Order Number	Ship Via	Date Shipped	Our Order Number	Invoice Date	Page
	12503716	"DIRECT KEA"	10/31/91	F91-103	10/31/91	

Quantity Ordered	Quantity Shipped	Back Ordered	Description	Price Per Unit	Extended Price
39 X 30 GAL (4428.450 LITERS)			SUNSPRAY ULTRAFINE	.65 LITER	$2,878.49
61 X 30 (6926.550 LITERS)			SUNSPRAY ULTRAFINE	NO CHARGE FOR TEST PURPOSES	

THESE COMMODITIES LICENSED BY U.S. FOR ULTIMATE DESTINATION SYDNEY, AUSTRALIA. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.

SUNOCO OVERSEAS

HENRY PIENIK
INTERNATIONAL SALES ADMINISTRATOR

Remittance Instructions For Wire Transfer:
The Philadelphia National Bank
For the account of: Sunoco Overseas, Inc.
Acct. No. 0123-1783
Philadelphia, PA 19101

Remarks

Terms CASH IN ADVANCE F.A.S. PHILA., PA

US $ $2,878.49

Sun—41834-A

0-0085

3 of 4

BRYCE.WPD 1

INTERNATIONAL BILL OF LADING

COMBINED TRANSPORT SHIPMENT OR PORT TO PORT SHIPMENT

Australia-New Zealand Direct Line

(A Joint Service of Australia-New Zealand Container Line S.A. and Pacific Container S.A.)

SHIPPER/EXPORTER (COMPLETE NAME AND ADDRESS)
N CENTER PLAZA
01 MARKET STREET
ILADELPHIA PA 19103

BOOKING NO. 1022915

BILL OF LADING NO. 15

EXPORT REFERENCES
91-181(66) 43127
BDP JOB# 910251018

CONSIGNEE (NOT NEGOTIABLE UNLESS CONSIGNED TO ORDER)
STRALIA AND NEW ZEALAND
NKING GROUP LTD.

FORWARDING AGENT, F.M.C. NO.
BDP INTERNATIONAL, INC.
510 WALNUT STREET
PHILADELPHIA, PA 19106
(CHB 4660)
FMC# 1127

NOTIFY (COMPLETE NAME AND ADDRESS)
BERT BRYCE & CO. LTD.,
2 WELSHPOOL RD.
EENS PARK, WEST AUSTRALIA 6107

ALSO NOTIFY - ROUTING & INSTRUCTIONS
NO SED REQ. SECT. 30.39 FTSR,C.A.S-BD

CARRIER

PLACE OF RECEIPT
NEW YORK, NY

PORT CARRIER (VESSEL, VOYAGE)
RECT NEA 102S

PORT OF LOADING
LOS ANGELES, CA

LOADING PIER/TERMINAL

PORT OF DISCHARGE
LBOURNE, VIC

PLACE OF DELIVERY*
MELBOURNE, VIC

TYPE OF MOVE
FCL/FCL

PARTICULARS FURNISHED BY SHIPPER

MARKS & NOS	CONTAINER NOS	NO. OF PKGS	DESCRIPTION OF PACKAGES AND GOODS	GROSS WEIGHT	MEASUREMENT
V NA M # 2715 PPERS LOAD V AND COUNT 12401683 SN#01		1 X 20	TK CNTR STC PETROLEUM LUBRICATING OIL NON HAZARDOUS, NO LABEL REQUIRED FREIGHT COLLECT ON BOARD [illegible]	38660LBS 17536KGS	600.000CF 16.980CM
			TOTALS:	38660LBS 17536KGS	600.000CF 16.980CM

AUSTRALIA

COPY NON NEGOTIABLE

Commodities licensed by U.S. for ultimate destination — Diversion contrary to U.S. Law prohibited. — * Applicable only when used in multimodal service.

SHIPPER'S DECLARED VALUE $
SUBJECT TO EXTRA FREIGHT AS PER TARIFF AND CLAUSE 6 OF THIS B/L

FREIGHT PAYABLE AT
MELBOURNE, VIC

NO. OF ORIGINAL B(s)/L 03

CHARGES	TO BE	PREPAID U.S. $	COLLECT U.S. $
FREIGHT PER 20	3140.00		3140.00US$
PER	263.75		263.75US$
PER AS	290.00		290.00US$
CHARGES			3693.75US$

B/L NUMBER [illegible] DATE 10 DEC 91

The Undersigned hereby acknowledges receipt of the sealed container or packages or other shipping units said to contain the Goods described above in apparent external good order and condition unless otherwise stated. The Shipper agrees, and the Consignee and every person purchasing this instrument for value, if negotiable, or otherwise having an interest in the Goods is advised that the receipt, custody, carriage and delivery of the Goods are subject to all the terms and conditions set forth and incorporated by reference on this side and the reverse hereof, whether written, stamped or printed.

0100386

A full set of originals of this bill of lading is hereby issued by the Carrier. Upon surrender to the Carrier of any one negotiable bill of lading, properly endorsed all others shall stand void.

Australia-New Zealand Direct Line

BY

Customer Invoice/Bill Of Lading

SUN

Sun Refining and Marketing Company
Ten Penn Center
1801 Market Street
Philadelphia PA 19103-1699

People Make The Difference

SUNOCO

INVOICE NUMBER 2480495
INVOICE DATE 10/18/91
BILL OF LADING NUMBER

PLEASE REMIT TO
PO BOX 8500, K-170
PHILADELPHIA,PA 19178

SOLD TO0368382800

SOI/ROBERT BRYCE AND CO LTD.
ATTN H. PIENIK-25TH FLR 10PC
1801 MARKET STREET

PHILADELPHIA PA 19103

SHIPPED TO0368383600

ROBERT BRYCE AND CO LTD.

145/147 GLENLYON ROAD
AUSTRALIA
BRUNSWICK VICTORIA 0000003054

CUSTOMER PURCHASE ORDER NUMBER F91-103
SUN ORDER 009644

SHIP DATE 10/17/91 SHIPPED FROM MARCUS HOOK PA 08800 SHIPPED VIA COMMON CARRIER
TAX JURISDICTION PENNSYLVANIA FREIGHT TERMS COLLECT FOB SHIPPING POINT

BILL OF LADING	NO OF PACKAGES	PACKAGE/ PRODUCT	BILLING QUANTITY	UNIT BILL	UNIT PRICE	LINE ITEM AMOUNT
964401	100	30GAL SUNSPRAY ULT-FINE SPRAY	3,000.0	GAL	.90	2,700.00

Henry:
Re: F91-103
Value only $2878.49
Please let me know
if it is right.
Thanks!
Y'y'

S. Yuk

SUN

IN CASE OF TRANSPORTATION EMERGENCY INVOLVING PUBLIC SAFETY CALL 800-421-9300

PAYMENT INFORMATION
CREDIT TER[illegible] NET 30 DAYS

TOTAL AMOUNT OF INVOICE $ 2,700.00

BDP INTERNATIONAL, INC.

	TELEPHONE	FAX	TELEX
510 WALNUT ST., PHILA., PA 19106	215-629-[illegible]	215-629-[illegible]	[illegible]
1017 4TH AVE., LESTER PA [illegible]	215 521-4200	215 521 [illegible]	[illegible]
P.O. BOX 500, MIDDLETOWN PA [illegible]	717-944-[illegible]	717 944 [illegible]	[illegible]
[illegible] OREGON AVE., SUITE E LINTHICUM MD [illegible]	301-[illegible]	301 [illegible]	[illegible]
2535 N.W. 72ND AVE. MIAMI FL [illegible]	305 [illegible]	305 [illegible]	[illegible]
80 WEST ST., SUITE 1720, NEW YORK, NY [illegible]	212 513 [illegible]	212 [illegible]	[illegible]
155 08 S. CONDUIT AVE., JAMAICA NY 11434	718 712 [illegible]	718 [illegible]	[illegible]
1300 WOOD DALE RD., SUITE B, WOOD DALE IL [illegible]	708 [illegible]	708 [illegible]	[illegible]
15700 EXPORT PLAZA DR. UNIT E, HOUSTON TX [illegible]	713-[illegible]	713 [illegible]	
6330 NEWTOWN RD., NORFOLK VA [illegible]	804-461-[illegible]	804 461 [illegible]	
SUITE 1044 WORLD TRADE CENTER, NEW ORLEANS, LA [illegible]	504-525-[illegible]	504 525 [illegible]	

FMC NO. 1127
IATA NO. 01-12600

IMPORT-EXPORT INVOICE

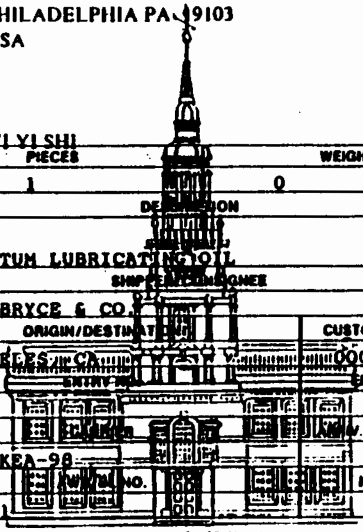
TO: SUNOCO OVERSEAS, INC
1801 MARKET STREET
PHILADELPHIA PA 19103
USA

INVOICE NO.	INVOICE DATE	YOUR REFERENCE NO.
91-0247874-00	11/04/91	F91-103(49)

BDP JOB NUMBER: 91-0247874

THIS INVOICE IS PAYABLE UPON RECEIPT
PORTIONS OF THIS BILL REPRESENT CASH OUTLAY, KINDLY REMIT

ATTN: YI YI SHI



PIECES	WEIGHT
1	0

DESCRIPTION
PETROLATUM LUBRICATING OIL

SHIPPER/CONSIGNEE
ROBERT BRYCE & CO.

ORIGIN/DESTINATION	CUSTOMER NUMBER
LOS ANGELES, CA	00057634
ENTRY NO.	ENTRY DATE
CARRIER	ARRV./DEPART. DATE
DIRECT KEA-98	
AWB/BL NO.	HAWB NO.
01019181	

REMARKS
THANK YOU CAROLE ZAGONE

VB 11/4/91

DESCRIPTION OF CHARGES	AMOUNT
TELEPHONE & TELEGRAMS	9.50
POSTAGE & PETTIES	10.75
FORWARDING	50.00
EXPORT MESSENGER SERVICES	7.50
EXPORT DECLARATIONS	10.00
NET AMOUNT DUE	$87.75

S.I
[signature]
11/8/91
F91-103
INV 910145
10/21/91
[signature]
11/7/91
Pls pay.

NOTICE:
IMPORTER MUST FURNISH MISSING DOCUMENTS WITHIN SIX MONTHS TO AVOID CUSTOMS PENALTIES.
Do not dispose of any part of a shipment until you have received all packages held for Customs examination. If you are unable to redeliver to Customs on demand, severe penalties may result.
This invoice covers cash advances and services, including in each item of disbursement (except duty and freight), our profit or compensation for our services.

THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS ON REVERSE SIDE

PLEASE REMIT TO: [redacted]

ORIGINAL INVOICE

FOR PROPER CREDIT RETURN THIS STUB WITH YOUR PAYMENT

INVOICE #: 91-0247874-00
CUSTOMER #: 00057634
AMOUNT DUE: 87.75
SUNOCO OVERSEAS, INC
INVOICE DATE: 11/04/91

PLEASE REMIT ALL PAYMENTS TO:
BDP INTERNATIONAL, INC.
P.O. BOX 8500-8470
PHILADELPHIA, PA 19178-8470

SALES TAX | DOC. NO. | TRANS. | VENDOR CODE | DEDUCTION | DISCOUNT | TERMS | F.O.B. | DUE DATE | C M D Y | A T R
DATE REC'D. | EXT. | PURCH. | AUTHORIZED SIGNATURE | CHK. IND. | DIV.-REG.-DIST. | BCH NO.
TRANS. | WORK ORDER | SUB/DTL | DISTRIBUTION | QUANTITY | MATERIAL | P/C

0010088

THIS MEMORANDUM is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

SHIPPER'S NO. 00964401
CONSIGNEE NO. [illegible] 991-[illegible]3

CARRIER [illegible]
CARRIER'S NO.

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.

[illegible] HOOK PA [illegible]8880 DATE [illegible]9-17-91 FROM: SUN R&M

[illegible] property described below in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

[illegible]388838.09
CONSIGNED TO ROBERT BRYCE AND CO. [illegible]D.
(Mail or street address of consignee for purposes of notification only.)

145/147 GLENLYON ROAD
DESTINATION BRUNSWICK VICTORIA STATE OF [illegible]00000 COUNTY OF

ROUTING

[illegible]784
DELIVERING CARRIER COMMON CARRIER VEHICLE OR CAR INITIAL VEHICLE OR CAR NO.

WEIGHT (LBS.)	DATE — TIME & YEAR	TANK NUMBER LOADED FROM	CARRIER	
			TIME IN	TIME OUT
GROSS		LABORATORY OK	TRACTOR NUMBER	
TARE		FLASH POINT ☐ 100°F OR ABOVE ☐ 81 TO 100°F ☐ 80°F OR LOWER	TRAILER NUMBER	
NET			RATED CAPACITY	

NO. OF PACKAGES	HM†	DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	STCC NO.	* WEIGHT (SUBJ. TO CORR.)	CLASS OR RATE
100		30 GAL DRUMS PETROLEUM OIL NOIBN SUNSPRAY ULT-FINE SPRAY		NOT DOT 24630	REGULATED
		NUM ____ & WEIGHT ______ # OF PALLETS			
		TOTAL WEIGHT		24630	

Subject to section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

SUN R&M -
(Signature of Consignor)

If charges are to be prepaid write or stamp here, "To be prepaid."

Received $ ____________ to apply in prepayment of the charges on the property described hereon.

(Agent or Cashier)

Per ____________
(The signature here acknowledges only the amount prepaid.)

Charges Advanced

$ ____________

FOR TRANSPORTATION EMERGENCY - SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT, CALL 800-424-9300

† This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.
† Shipper's Imprint in Lieu of Stamp: Not a Part of Bill of Lading Approved by the Interstate Commerce Commission.

The driver by signing this Bill of Lading hereby certifies that transport was loaded as specified.

The carrier certifies that the cargo tank supplied for this shipment is a proper container for the transportation of this commodity as described by shipper.

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

SHIPPER
PER SUN REFINING AND MARKETING CO.

Per

AGENT

MAIL FREIGHT BILLS TO: [signature]

PER 0·0089

SUN-40696 B

CARRIER'S COPY

5

7 [handwritten initials]

PULL HERE TO OPEN
PRESS TO RESEAL

SunSpray® Ultra-Fine™ SPRAY OIL

A superior horticultural spray oil for insect and mite pest management.

ACTIVE INGREDIENT	
Paraffinic Oil*	98.8%
INERT INGREDIENT	
Emulsifier	1.2%
*Unsulfonated Residue of Paraffinic Oil	92.0 % Min.
*50% Distillation Point of Paraffinic Oil	414°F
*10%-90% Distillation Range of Paraffinic Oil	65° F Max.
*Flash Point	345° F
Weight per Gallon	7.1 lbs.

CAUTION: KEEP OUT OF REACH OF CHILDREN
SEE ADDITIONAL PRECAUTIONARY STATEMENTS INSIDE BOOKLET
SEE DIRECTIONS FOR USE INSIDE BOOKLET
EPA Registration No. 862-23
Sun Refining and Marketing Company Ten Penn Center
Philadelphia PA 19103

EPA EST. NO. 862-PA-1
NET CONTENTS: 30 GAL.

8 JMH

PRECAUTIONARY STATEMENTS

Hazards to humans and domestic animals. Avoid contact with eyes, skin and clothing. Additional precautionary statements contained in this booklet.

Harmful if swallowed.
Avoid breathing of spray mists or vapors.
Wash hands after using.
Avoid contamination of feed and foodstuffs.

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Do not induce vomiting. Call a physician immediately.
If on skin: Wash with soap and water.
If in eyes: Flush with water.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters. Apply this product only as specified on this label.

STORAGE AND DISPOSAL

1. **Prohibitions:** Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.
2. **Storage:** Store in a cool, dry, locked area out of the reach of children. Keep oil container tightly closed in storage to prevent entry of water.
3. **Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
4. **Container Disposal:** **Metal:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. **Plastic:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

USE PRECAUTIONS

Keep oil container tightly closed in storage to prevent entry of water. All horticultural oils interfere with or slow plant transpiration and respiration during the period of evaporation. Phytotoxicity may result if sprayed to plants during periods of prolonged high temperature and high relative humidity. Do not spray to plants under moisture stress.

Do not use this product with dimethoate (Cygon) or fungicides such as captan (Captan), anilazine (Dyrene), folpet (Folpet), dinocap (Karathane), oxythioquinox (Morestan), or any other product containing sulfur. If possible, either keep the spray equipment used for these compounds separate from the equipment used for oil , or make sure that the sprayer is thoroughly cleaned so that no residue from these compounds remain. Do not use with dimethoate or Sevin 50W formulation (carbaryl) on deciduous fruit trees.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any type of irrigation system.

MIXING INSTRUCTIONS

1. Add sufficient water to the mixing tank to allow proper agitation by pump or paddles.
2. Add other desired pesticides. If wettable powder formulation, mix the water and powder thoroughly so that the powder is totally suspended in the water before the oil is added. If other pesticide to be added is an emulsifiable formulation, do so after the oil and water has been thoroughly mixed.
3. Add oil under agitation when tank is 3/4 full. Top off with water to form milky solution.
4. Maintain agitation until solution is used.
5. In small equipment lacking agitators, stir or shake diluted spray frequently during application.
6. It is important for users to read and follow all directions and restrictions on the labels of the proposed tank mix products.
7. Flush fluid in sprayer hose lines back into tank reservoir if fluid is allowed to stand for more than 20 minutes.

GENERAL INFORMATION

This product controls adelgids, aphids, lace bugs, leafhoppers, leafminers (larvae), mealybugs, mites, plant bugs, psyllids, sawfly larvae, scales, whitefly and eggs of aphids, mites and certain caterpillars on vegetables, fruits, tree nuts, certain field crops, shrubs, trees, greenhouse plants, ornamental foliage plants and flowers. This product can be applied up to harvest.

TABLE 2
SHADE TREES, SHRUBS, ORNAMENTALS, FLOWER & FOLIAGE PLANTS, CHRISTMAS TREES

CROP OR PLANT	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Shade Trees* and Shrubs including Conifers, Deciduous Broadleaf Evergreens and Woody Ornamentals	Aphids Adelgids Bugs (immature) Certain Caterpillars Eriophyid Mite Gall Mite Lace Bug Leaf Beetle Larvae Leaf Miner Mealybug Psyllids (immature) Sawfly (larvae) Scales (immature) Spider Mite Whiteflies (immature)	2-4	Winter dormant period as needed
		1-3	Summer (foliar or cover) as needed
Ornamental Trees* and Shrubs along City Streets and other Rights-of-Way including Conifers, Deciduous and Broadleaf Evergreens			
Flowers & Foliage Plants including Roses and Other Flowering Shrubs Foliage Ornamentals and Bedding Plants		2-3	Winter dormant period as needed
		1-2	Summer (foliar or cover) as needed
Christmas Trees*	Aphids Adelgids Scale (soft & hard) (immature) Spider Mite	2-4	Winter
		1-3	Summer

*Oil removes the glaucus (blue) bloom from such evergreens as Colorado Blue Spruce and Koster Spruce. Always use lower dosage or test spray oil sensitive plants such as Cryptomeria, Smoke Tree, Chamaecypris, Juniper, Japanese Holly and Spruce. Tendency toward sensitivity; Red Cedar and Douglas Fir. Do not spray walnut foliage

Caution: Spray no more than 4 times during the growing season; two week minimum application interval. Do not spray when buds have fully opened and shoot elongation is occuring. Do not spray when there is obvious moisture deficit in leaves, or the plant is under stress. Fall dormant treatments are not recommended. Keep away from open blooms - bleaching and spotting has been observed with the open blooms of certain plants

0.0091

EPA EST. NO. 062-PA-1
NET CONTENTS: 30 GAL.

Harmful if swallowed.
Avoid breathing of spray mists or vapors.
Wash hands after using.
Avoid contamination of feed and foodstuffs.

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Do not induce vomiting. Call a physician immediately.
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If in eyes: Flush with water.

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STORAGE AND DISPOSAL

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2 **Storage:** Store in a cool, dry, locked area out of the reach of children. Keep oil container tightly closed in storage to prevent entry of water.
3 **Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
4 **Container Disposal:** **Metal:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. **Plastic:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

USE PRECAUTIONS

Keep oil container tightly closed in storage to prevent entry of water. All horticultural oils interfere with or slow plant transpiration and respiration during the period of evaporation. Phytotoxicity may result if sprayed to plants during periods of prolonged high temperature and high relative humidity. Do not spray to plants under moisture stress.

Do not use this product with dimethoate (Cygon) or fungicides such as captan (Captan), anilazine (Dyrene), folpet (Folpet), dinocap (Karathane), oxythioquinox (Morestan), or any other product containing sulfur. If possible, either keep the spray equipment used for these compounds separate from the equipment used for oil, or make sure that the sprayer is thoroughly cleaned so that no residue from these compounds remain. Do not use with dimethoate or Sevin 50W formulation (carbaryl) on deciduous fruit trees.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any type of irrigation system.

MIXING INSTRUCTIONS

1 Add sufficient water to the mixing tank to allow proper agitation by pump or paddles.
2 Add other desired pesticides. If wettable powder formulation, mix the water and powder thoroughly so that the powder is totally suspended in the water before the oil is added. If other pesticide to be added is an emulsifiable formulation, do so after the oil and water has been thoroughly mixed.
3 Add oil under agitation when tank is 3/4 full. Top off with water to form milky solution.
4 Maintain agitation until solution is used.
5 In small equipment lacking agitators, stir or shake diluted spray frequently during application.
6 It is important for users to read and follow all directions and restrictions on the labels of the proposed tank mix products.
7 Flush fluid in sprayer hose lines back into tank reservoir if fluid is allowed to stand for more than 20 minutes.

GENERAL INFORMATION

This product controls adelgids, aphids, lace bugs, leafhoppers, leafminers (larvae), mealybugs, mites, plant bugs, psyllids, sawfly larvae, scales, whitefly and eggs of aphids, mites and certain caterpillars on vegetables, fruits, tree nuts, certain field crops, shrubs, trees, greenhouse plants, ornamental foliage plants and flowers. This product can be applied up to harvest.

The target pest must be completely covered with spray. Oil residue on the plant surface often acts as a feeding and oviposition deterrent. However, the primary target is the pest itself as oil is a contact pesticide.

DILUTE APPLICATIONS (greater than 150 gallons spray per acre) in most cases, ensure the best coverage.

CONCENTRATE APPLICATIONS (usually from [illegible]25 gallons spray per acre) may reduce coverage and effectiveness. Concentrate application includes the use of low volume (from 10 to 100 gallons spray per acre) air-blast or air-carrier sprayers. A concentrate application can provide satisfactory results as long as the spray unit is properly engineered, calibrated and operated. Speed of travel for ground application is extremely important. Tractor speed from 1 M.P.H. to 4 M.P.H. is recommended depending on crop, crop size and target pest.

AERIAL APPLICATIONS - Use only as an emergency application when soil conditions do not permit regular ground application. Helicopter only. Apply quantity of product shown for each listed crop for control of listed insects in sufficient water to make a minimum of 20 gals. dilute spray per acre.

TIMING THE TREATMENT

Applicator must determine the precise timing to fit local growth and climatic conditions.
DO NOT EXCEED MAXIMUM RATES OR APPLY MORE OFTEN THAN RECOMMENDED.
MAY BE USED UP TO DAY OF HARVEST.

USES

TANK MIXES: This product may be mixed with other pesticides to improve the level of kill or enhance coverage. Users should read and follow all directions and restrictions on the labels of the proposed tank mix products.

RE-ENTRY STATEMENT

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons. Do not enter treated areas without protective clothing until sprays have dried. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in treated areas or in an area about to be treated with this product. When oral warnings are given, warning shall be given in a language customarily understood by workers. Written warnings must include the following information: "CAUTION - Area treated with SunSpray Ultra-Fine Spray Oil on (date). Do not enter without appropriate protective clothing until sprays have dried." In case of accidental exposure, refer to Statement of Practical Treatment found on this product label.

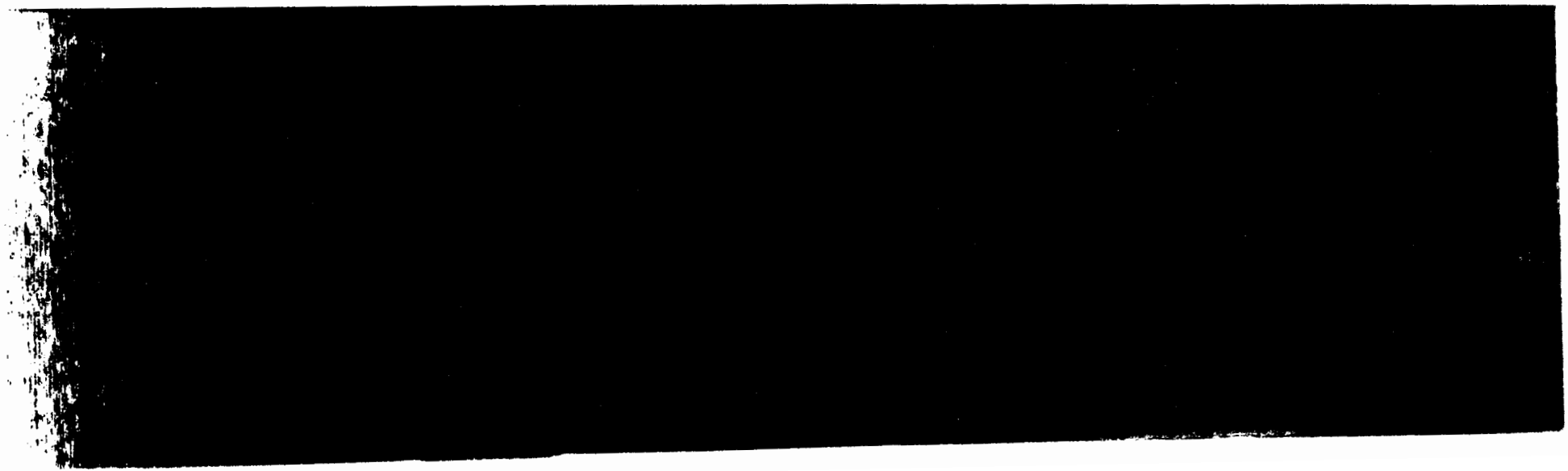
NOTE: This pesticide is to be sold ONLY in this original unbroken container.

LIMITED WARRANTY AND LIABILITY

This product conforms to the description and is suitable for the uses set forth on this label but is strictly limited to these uses solely as directed under the specified label conditions, and only if purchased in the original unopened container. SELLER DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE. Buyer and all users shall assume all risk, liability and damage if this product is used, stored, handled or applied other than as specifically set forth on this label. SELLER'S LIABILITY AND BUYER'S OR USER'S REMEDIES SHALL BE LIMITED TO REFUND OF THE PURCHASE PRICE OR REPLACEMENT OF THE SPECIFIC QUANTITY INVOLVED. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CROP	PEST	DIL: / GA
Apple	Aphids (eggs) Bugs (immature) including Apple Red Bug Mites (eggs) including European Red Mite Scales (hard, soft) Scurfy Scale Fruit Tree Leaf Roller (eggs)	
	Mites	
Pear	European Red Mite (eggs) Pear Leaf Blister Mite (eggs) Pear Psylla Scales Fruit Tree Leaf Roller (eggs)	
	Two-spotted Spider Mite Brown Mite Pear Rust Mite Pear Leaf Blister Mite Pear Psylla	

*Aerial application sh[illegible] do not [illegible]



2600-0

TABLE 1A

CROP	PEST	APPLICATION RATE - GALLONS OIL: DILUTE SPRAY PER 100 GAL. WATER	CONCENTRATE PER 20-125 GAL. WATER	AERIAL* MIN. 20 GAL. SPRAY	TIME OF APPLICATION (STAGE OF DEVELOPMENT)
Apple	Aphids (eggs)	2	6-8	6-8	Dormant or delayed dormant to 1/2" green
	Bugs (immature) Including Apple Red Bug	2	6-8	6-8	
	Mites (eggs) Including European Red Mite	2	6-8	6-8	
	Scales (hard, soft)	2	6-8	6-8	
	Scurfy Scale	3	6-8	6-8	
	Fruit Tree Leaf Roller (eggs)	3	6-8	6-8	
	Mites	1	4	4	Summer (foliar or cover) or post harvest. Do not apply over fruit after waxy bloom forms.
Pear	European Red Mite (eggs)	1-2	4-6	4-6	Dormant or delayed dormant (up to and including petal fall)
	Pear Leaf Blister Mite (eggs)	3	4-6	4-6	
	Pear Psylla	2	4-6	4-6	
	Scales	2	4-6	4-6	
	Fruit Tree Leaf Roller (eggs)	3	4-6	4-6	
	Two-spotted Spider Mite	1	4	4-6	Summer (foliar or cover) or post harvest
	Brown Mite	1	4	4-6	
	Pear Rust Mite	1-2	4-6	4-6	
	Pear Leaf Blister Mite	1.5-2	4-6	4-6	
	Pear Psylla	1.5-2	4-6	4-6	

*Aerial application should be used only as emergency application when soil conditions do not permit regular ground application (helicopter only).

E600-0

TABLE 1B

CROP	PEST	APPLICATION RATE - GALLONS OIL: DILUTE SPRAY PER 100 GAL. WATER	CONCENTRATE PER 20-125 GAL. WATER	AERIAL* MIN. 20 GAL. SPRAY	TIME OF APPLICA (STAGE OF DEVELO
Almond Apricot Cherry	Aphids (eggs) Bugs (immature) Tent Caterpillars Fruit Tree Leaf Roller (eggs)	2-3	6-8	6-8	Dormant or delayed
	San Jose Scale	2	4-6		Dormant
	Mites and Scales	1-1.5	4-6	4-6	Summer (foliar or cove harvest. - Application should not over oil sensitive varie - Do not apply to trees l adequate moisture.
Peach Nectarine	Aphids (eggs) Bugs (immature) Fruit Tree Leaf Roller (eggs) Mites (eggs) Peach Twig Borer (hibernaculae)	3	6-8	6-8	Dormant or delayed d
	Cottony Peach Scale San Jose Scale	2	4-6		Dormant
	Mites and Scales	1-2	4-6	4-6	Summer (foliar or cove harvest
Plum Prune	Aphids (eggs) Scales Mites (eggs)	1.5-2	6-8	6-8	Dormant or delayed do 1/2" green tip
	Mites Scales	1-1.5	4-6	4-6	Summer (foliar or cove harvest. - Do not apply over certa market fruits after bloo to form as the oil spray remove the waxy bloo - Applications should not over oil sensitive varie
Pecan	Aphids (eggs) Scales Mites (eggs)	3	6-8	6-8	Dormant
	Aphids Mites	1-1.5	4-6	4-6	Summer (foliar or cove harvest

*Aerial application should be used only as emergency application when soil conditions do not permit regular ground application (helicopter only)

PULL HERE TO OPEN
PRESS TO RESEAL

SunSpray
Ultra
SPRAY. OI

A superior horticultural spray

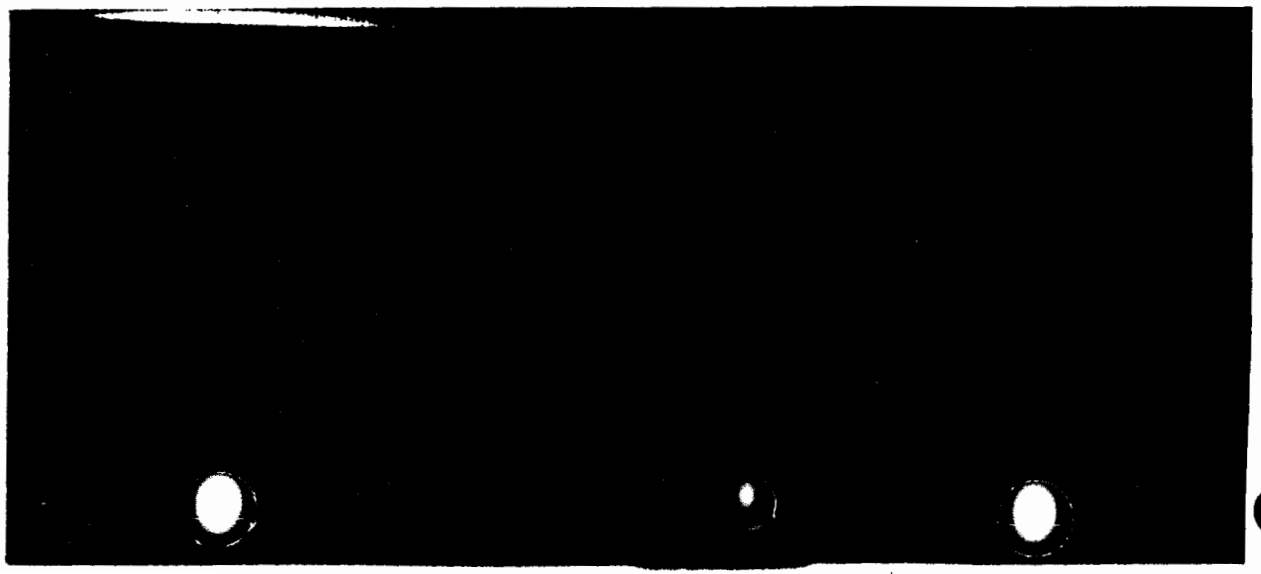
ACTIVE INGREDIENT
Paraffinic Oil*
INERT INGREDIENT
Emulsifier

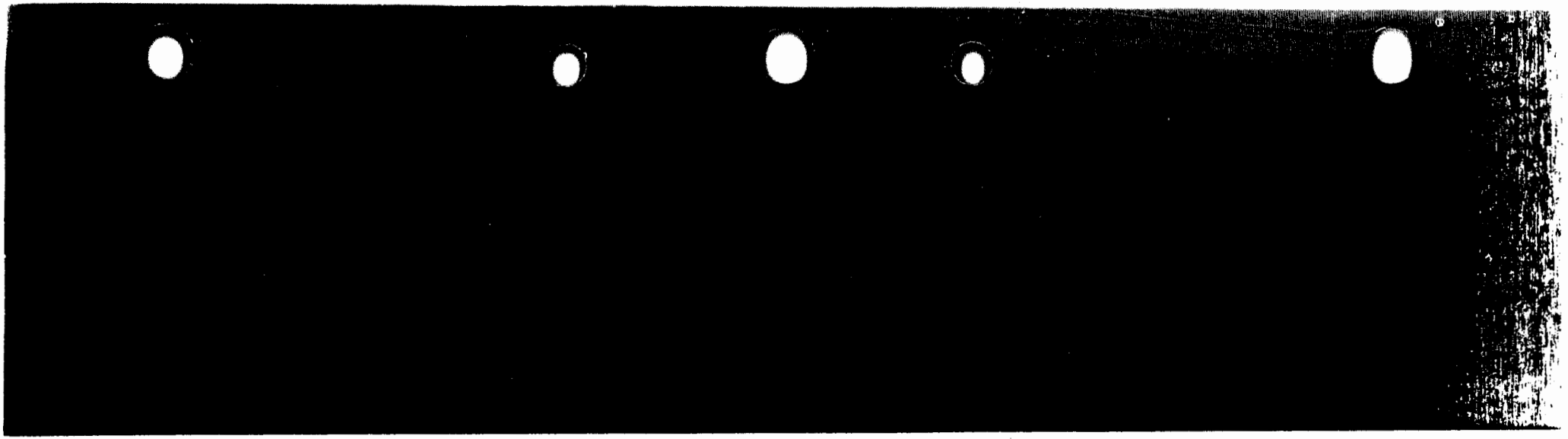
*Unsulfonated Residue of Par
*50% Distillation Point of Para
*10%-90% Distillation Range
*Flash Point
Weight per Gallon

CAUTION: KEEP
SEE ADDITIONAL PREC

SEE DIRECTIONS
EPA Reg
Sun Refining and Mark
Philad

EPA EST. N
NET CONTE





TS

OIL PER AL. WATER	TIME OF APPLICATION
2 2 3	Foliage Dormant
1	Dormant and foliage

ITS

OIL E)0 RE)	TIMING OF APPLICATION
nded	Dormant - a tank mix using an insecticide improves control
	Spray when crawlers are active and exposed - usually around early summer (around July 1) Best results will occur when sprayed during first brood. Sprays after grapes are more than 1/4" diameter may affect bloom.

injury and reduce effect on bloom of table grapes.

TABLE 4
VEGETABLES

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Asparagus Beans Beet Corn Cucurbits Pepper Radish Squash Tomato	Aphids Mites Beetle Larvae Leafminers Certain Caterpillars Thrips Leafhopper Whitefly	1-2	As needed

TABLE 5
FIELD CROPS

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Corn (sweet & field) Sugar Beet	Aphids Mites Leafminers Certain Caterpillars including Corn Earworm, Rootworm and Armyworm Whitefly Bugs (immature)	2	As needed

MISCELLANEOUS:

Figs: Dormant or delayed dormant: Fig Scale - Use 3 gal. in 100 gal. water as a foliar spray. Mites, Mealybug, Scale - Use 2 gal. per 100 gal. water.

Olives: Postbloom through August and Postharvest: Scales - Use 1.5 gal. per 100 gal. water. Apply at 400 to 800 gal. per acre.

Banana, Plantains: Use as needed to control Yellow Sigatoka Disease - Use 1-1.5 gal. per 100 gal. water. This applica tion is also effective in loosening sooty mold fungus and in preventing its formation by the control of Aphids, Mealybugs, Scales and Whitefly.

Avocado (Haas Only) and Mangos: Use 1-1.5 gal. per 100 gal. water as needed to control Aphids, Mealybugs, Scales and Whitefly.

INTERIORSCAPES*

CROPS	PEST	GALS. OIL PER 100 GAL. WATER	TABLESPOONS OIL IN 1 GAL. WATER	SPECIFIC COMMENTS
Chrysanthemum Diffenbachia Dracaena Ferns Ficus Gardenias Jade Plant Palms Philodendron	Aphids Leafminers Mealybugs Scales Spider Mite Whitefly (immature)	1-2	2.5-5.0	Do not apply to plants in direct sunlight behind glass. Do not use on Coconut Palms and Maidenhair Ferns. Chrysanthemum blooms have shown phytotoxic symptoms at the higher rate. Applicator should conduct a test for phytotoxicity by treating a few specimens before making a large-scale application.

*Protect floor, floor coverings and furnishings from overspray.

TABLE 6
GREENHOUSE

CROP OR PLANT	PEST	TABLESPOONS OIL IN 1 GAL. WATER	GALS. OIL PER 100 GAL. WATER	SPECIFIC COMMENTS
Azalea	Aphids	2.5-5.0	1-2	Do not use on Coconut Palms or Maidenhair Ferns Chrysanthemum and Geranium Blooms have shown phytotoxic symptoms at the 2 gallon rate * Although no problems with phytotoxicity have been seen at recommended rates, we recommend that the applicator conduct a phytotoxicity test on 1 or 2 of the specific plants that are to be treated.
Begonia	Fungus Gnats	2.5-5.0	1-2	
Camellia	Bugs	2.5-5.0	1-2	
Chrysanthemum	Leafminers	2.5-5.0	1-2	
Crown of Thorns	Mealybugs	2.5-5.0	1-2	
Diffenbachia*	Scales	2.5	1	
Easter Lilly	(soft & hard)	2.5-5.0	1-2	
Fern	Spider Mite	2.5-5.0	1-2	
Gardenia	Thrips	2.5-5.0	1-2	
Geranium	Whitefly	2.5-5.0	1-2	
Hibiscus Foliage	(immature)	2.5-5.0	1-2	
Jade Plant		2.5-5.0	1-2	
New Guinea Impatiens		2.5-5.0	1-2	
Palm		2.5-5.0	1-2	
Philodendron		2.5-5.0	1-2	
Poinsettia		2.5	1	
Portulaca		2.5-5.0	1-2	
Reiger Begonia		2.5-5.0	1-2	
Zinnia		2.5-5.0	1-2	
Leaf Polish for Hardy Plants		2.5	1	

FREQUENCY OF APPLICATION: For the greenhouse pests listed, use once a week initially, then as the pest is con trolled decrease the frequency to every 2-3 weeks as needed.

Application safety during bloom period should be determined for each individual species of plant to be treated by conduct ing a small test.

TABLE 3A
SMALL FRUITS

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Blueberry	Mites Sawfly (eggs) Scales	2 2 3	Foliage Dormant
Strawberry	Aphids Mites	1	Dormant and foliage

TABLE 3B
SMALL FRUITS

CROP	PEST	APPLICATION RATE - GAL. OF OIL		TIMING OF APPLICATION
		DILUTE SPRAY	CONCENTRATE SPRAY* (40-100 GAL. SPRAY/ACRE)	
Grape	Mealybug	4-6 Gal. with 200 to 300 Gal. Water per Acre	Not Recommended	Dormant - a tank mix using an insecticide improves control
	Mealybug	Not Recommended	4	Spray when crawlers are active and exposed - usually around early summer (around July 1)
	Leafhopper	Not Recommended	4	Best results will occur when sprayed during first brood. Sprays after grapes are more than 1/4" diameter may affect bloom

*Air-carrier or air-blast type sprayers strongly recommended to avoid plant injury and reduce effect on bloom of table grapes

MANUFACTURED BY: SUN REFINING AND MARKETING
TEN PENN CENTER
1801 MARKET STREET
PHILADELPHIA, PA. 19103-1699
SUN PRODUCT CODE: 319100

*** SECTION 1 - IDENTIFICATION ***

PRODUCT NAME - SUNSPRAY ULT-FINE SPRAY

M.S.D.S DATE: 10/12/89
UN/NA NUMBER:

SYNONYMS.....: AGRICULTURAL OIL
CAS REGISTRY NO: SEE SEC. 2
CAS NAME.....: NO CLASSIFICATION - MIXTURE
CHEMICAL-FAMILY: BLEND
INFORMATION:
SUPPLIER...: JOANNE HOUCK
PHONE.....: 215-977-6133

*** SECTION 2 - INGREDIENTS ***

SOLVENT REFINED LIGHT PARAFFINIC PETROLEUM OIL, CAS# 64741-89-5 (THIS OIL MAY ALSO BE HYDROTREATED TO IMPROVE COLOR STABILITY); ALKYL ARYL POLYOXYETHOXY ETHANOL NONIONIC SURFACTANT AND ALKYLPHENOL COUPLER (ADDITIVE MFR CLAIMS AS PROPRIETARY INGREDIENTS). EPA REGISTRATION NUMBER 862-23.

*** SECTION 3 - PHYSICAL DATA ***

BOILING POINT.....:	HIGH WITH	(DEG. F)	WIDE RANGE	(DEG. C)
MELTING POINT.....:	N/A	(DEG. F)	N/A	(DEG. C)
SPECIFIC GRAVITY....:	0.87	(H2O=1)		
PACKING DENSITY.....:	N/A	(KG/M3)		
VAPOR PRESSURE.....:	< 0.0001	(MM HG AT 20C)		
VAPOR DENSITY.....:	8+	(AIR=1)		
SOLUBILITY IN WATER.:	NIL	(% BY VOL)		
PH INFORMATION.....:	N/A	AT CONC.	G/L H2O	
% VOLATILES BY VOL..:	NIL			
EVAPORATION RATE....:	1000X SLOWER		(ETHYL ETHER=1)	
OCTANOL/WATER COEFF.:	N.D.			
APPEARANCE.....:	COLORLESS FLUID.			
ODOR.....:	LITTLE ODOR.			
ODOR THRESHOLD.....:	N.D.	(PPM)		

*** SECTION 4 - FIRE AND EXPLOSION DATA ***

FLASH POINT	340 MINIMUM COC	(DEG. F)	171 MINIMUM COC	(DEG. C)
AUTOIGNITION TEMP.	650 ESTIMATED	(DEG. F)	343 ESTIMATED	(DEG. C)

---NFPA CLASSIFICATION---		------HAZARD RATING------	
HEALTH	- 0	0 - LEAST	3 - HIGH
FIRE	- 1	1 - SLIGHT	4 - EXTREME
REACTIVITY	0	2 - MODERATE	

SPECIFIC HAZARD
---FLAMMABLE LIMITS IN AIR---

UPPER EXPLOSIVE LIMIT (UEL) NOT DETERMINED % VOL.

FIRE AND EXPLOSION HAZARDS ----------
CAN BE MADE TO BURN (FLASH POINT GREATER THAN 200F).

EXTINGUISHING MEDIA ----------
WATER FOG. MECHANICAL FOAM. DRY CHEMICAL POWDER. CARBON DIOXIDE.

SPECIAL FIRE FIGHTING INSTRUCTIONS----
WEAR SELF-CONTAINED BREATHING APPARATUS WHEN FIRE FIGHTING IN CONFINED SPACE.

*** SECTION 5 - HEALTH HAZARD INFORMATION ***

EXPOSURE LIMITS---------- GOVERNMENT REGULATION
OTHER LIMIT: OIL MIST: 5 MG/M3 (OSHA PEL/ACGIH TLV)

*** ROUTES OF EXPOSURE AND EFFECTS ***

INHALATION ----------
NO ACUTE EFFECTS EXPECTED TO TWICE EXPOSURE LIMIT.

SKIN ----------
PRACTICALLY NON-TOXIC IF ABSORBED (LD50 GREATER THAN 2000 MG/KG). MODERATE IRRITATION REMOVES NATURAL OILS & FATS FROM SKIN WITH PROLONGED OR REPEATED CONTACT. DRAIZE SKIN IRRITATION SCORE IS: 1.84 OUT OF 8.0 ESTIMATED DERMAL LD50 IN RABBITS IS: >5,000 MG/KG

EYE ----------
NO EYE EFFECT EXPECTED. IRRITATION SCORE 6.7 0.0 0.0 0.0 OUT OF 110.0 AT 1 24 48 72 (HOURS)

INGESTION ----------
HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD IF SWALLOWED AND/OR VOMITING OCCURS - CAN ENTER LUNGS AND CAUSE DAMAGE. ESTIMATED LD50 IN RATS IS: >30 GM/KG.

*** FIRST AID ***

INHALATION ----------
NONE NORMALLY REQUIRED.

SKIN ----------
WASH WITH SOAP AND WATER UNTIL NO ODOR REMAINS. IF REDNESS OR SWELLING DEVELOPS, OBTAIN MEDICAL ASSISTANCE. WASH CLOTHING BEFORE REUSE.

EYE ----------
FLUSH WITH WATER.

INGESTION ----------
DO NOT INDUCE VOMITING! DO NOT GIVE LIQUIDS! OBTAIN EMERGENCY MEDICAL ATTENTION. SMALL AMOUNTS WHICH ACCIDENTALLY ENTER MOUTH SHOULD BE RINSED OUT UNTIL TASTE OF IT IS GONE.

*** SECTION 6 - REACTIVITY DATA ***

STABILITY----------
STABLE.

INCOMPATIBLE MATERIALS----------
STRONG OXIDIZERS

HAZARDOUS DECOMPOSITION----------
PRODUCTS: COMBUSTION WILL PRODUCE CARBON MONOXIDE AND ASPHYXIANTS

POLYMERIZATION----------
WILL NOT OCCUR.

*** SECTION 7 - SPECIAL PROTECTION INFORMATION ***

VENTILATION ----------
VENTILATE AS NEEDED TO COMPLY WITH EXPOSURE LIMIT.
*** PERSONAL PROTECTIVE EQUIPMENT ***
EYE ----------
PRODUCT MINIMALLY IRRITATING TO EYES. LOCAL SAFETY POLICY DECISION.
GLOVES ----------
IMPERVIOUS GLOVES RECOMMENDED WHEN PROLONGED SKIN CONTACT CANNOT BE AVOIDED.
RESPIRATOR ----------
CONCENTRATION-IN-AIR DETERMINES PROTECTION NEEDED. USE ONLY NIOSH CERTIFIED RESPIRATORY PROTECTION. RESPIRATORY PROTECTION USUALLY NOT NEEDED UNLESS PRODUCT IS HEATED OR MISTED.
OTHER ----------
IF CONTACT IS UNAVOIDABLE, WEAR IMPERVIOUS PROTECTIVE GEAR. LAUNDER SOILED CLOTHES.

*** SECTION 8 - DISPOSAL PROCEDURES ***

AQUATIC TOXICITY ----------
NOT DETERMINED
SPILL, LEAK OR RELEASE----------
CONTAIN SPILL. ADVISE EPA; STATE AGENCY IF REQUIRED. ABSORB ON INERT MATERIAL.
WASTE DISPOSAL METHOD----------
FOLLOW FEDERAL, STATE AND LOCAL REGULATIONS. DO NOT FLUSH TO DRAIN/ STORM SEWER. CONTRACT TO AUTHORIZED DISPOSAL SERVICE.

*** SECTION 9 - SPECIAL PRECAUTIONS ***

STORAGE AND HANDLING CONDITIONS------
NFPA CLASS IIIB STORAGE. WASH THOROUGHLY AFTER HANDLING.

SECTION 10 - ADDITIONAL PRECAUTIONS AND LABELS ***

SUNSPRAY ULTRA FINE SPRAY IS IN EPA HAZARD CATEGORY III FOR SKIN EFFECTS (MODERATE IRRITATION AT 72 HOURS) AND CATEGORY IV FOR EYE EFFECTS (MINIMAL EFFECTS CLEARING IN LESS THAN 24 HOURS).

STO-501. 9-86

COMMONWEALTH OF PENNSYLVANIA
Department of Agriculture
Region VII, Creamery

DATE: June 4, 1992

SUBJECT: Joint State/Federal Investigation at
Sun Oil Marcus Hook Facility

TO: Joseph N. Uram
Case Review Officer

FROM: API's Hudson and Walker
Bureau of Plant Industry
Pesticide Program

On March 2, 1992 I received a call from Jim Lorah, EPA saying there would be a multi-organization inspection of the Sun Oil facility at Marcus Hook, PA. It was requested that Howard Walker and I be available for the pesticide part of the inspection.

The first part of the inspection would take place on March 19. This was to be a safety meeting since no one could enter the refinery without having first taken the safety course. Inspector Walker and I met Mr. Lorah on March 19 and we drove to Marcus Hook and signed in at the facility. We were met by a Sun employee and taken to an office building where we met the rest of the inspection team, EPA, DER, DEL EPA, DEL DER, and PA DER. We were driven to a class room building and given a shortened safety course. The reason for the shortened course was that no one would be going anywhere on the refinery grounds without a Sun escort. They wanted us to know what new Sun employees and contractors were taught in an extended safety course. We viewed a film and heard a lecture on the various types of clothing and safety devices expected to be worn in what areas. It was then set up for us to return on April 10 to do our part of the inspection.

We arrived at Sun Oil at 9:00 a.m. We were asked to wear hard hats and eye shields which we had in our possession. We were taken to the clothing room and provided with a set of Nomax coveralls to wear during our inspection. Next we were driven to the lube service center where the pesticide oils were packaged. No spray oils are manufactured at this facility, only packaged for distribution. The spray oils are produced at the Puerto Rico refinery and shipped to Marcus Hook on a 14 day schedule in a dedicated tanker. Sun produces 10 grades of spray oil with the most volume "Sun Spray Ultra-Fine Spray Oil." The two people we met with were Mr. Kevin Madara, manager of bulk operation and Nancy Wright, manager of Horticulture Development. When asked what thay did with disposal product we were told there was none. If by chance any were off grade or unusable for spray product, it was put into one of the grades of motor oil and disposed of in that fashion as the spray oil was the finest product they made.

We next went to the production line and were shown how the products were stored in separate tanks, and had their own dedicated pipe line to the packaging line. The product was packaged and stored in an attached warehouse. We said we would need a sample and could take it from any container that was released for shipment. After a short discussion it was decided the easiest thing to do was to take a case of 2 x 2½ gallon jugs. One jug was placed in a plastic bag and sealed with PDA seal and left with Mr. Madara and one was placed in a plastic bag and sealed with a PDA seal and sent to Harrisburg.

We again met up in the office to receive the information for the inspection report. The percent pesticide production was 1% of gross sales. We asked for one set of shipping papers that went with a shipment out of the country, and the label that accompanied that shipment. Mr. Charles D. Barksdale, Jr., Sr. Environmental Consultant, Refining & Marketing Division, Philadelphia Refinery, 3144 Passyunk Ave., Philadelphia, PA 19145-5299, phone 215/239-2215, who was in charge of the inspection for Sun agreed to sent the requested information to me as soon as possible. He also identified all the attached labels that were secured on April 10. The shipping papers and label that was on the product shipped were not identified except by cover letter signed by Charles Barksdale, Jr.

Attachments:

NI & RS issued to and signed by Charles Barksdale, Jr.
Sun safety handbook
Delaware Valley Refining Complex handbook
Health & Safety Policy, phone numbers Marcus Hook Refinery.
Map of refinery
Label for Sun Spray Ultra-Fine Spray Oil, distributed by Mycogen Corp. and MSDS id'd by CB
Label for Sun Spray Ultra-fine Spray Oil 862-23 id'd by CB
" " Sun Spray 9E - 862-19 id'd by CB
" " Sun Spray 6E - j62-11 id's by CB
Sun Company, Inc. annual report - 1991
Export paperwork consisting of:
Customer invoice
International bill of lading
Freight invoice
BDP International, Inc. import-export invoice
Customer invoice/bill of lading
Label of Sun Spray Ultra-Fine Spray oil
M.S.D.S - Sun Spray Ultra-Fine Spray

JMH:kat

API-348 (8/83)

PDA/BPI ESTABLISHMENT INSPECTION REPORT

ESTAB. REG. NO.	TYPE OF ESTABLISHMENT	TYPE OF OWNERSHIP	DATE OF INSPECTION
862-PA-1	Production	Corporation	April 10, 1992

ESTABLISHMENT NAME, ADDRESS and COUNTY	RELATED FIRMS
Sun Company, Inc. Ten Penn Center 1801 Market St. Philadelphia, PA 19103-1699 Philadelphia County	None
NAMES AND TITLES OF PRINCIPAL OFFICERS OR OWNERS Annual Report	PERSON(S) INTERVIEWED (Give name title and phone) Kevin J. Madara, Manager Bulk Operation Nancy Wright, Manager Horticulture Dev.

PHYSICAL SAMPLES		DOCUMENTARY SAMPLES		LABELS REVIEWED WITHOUT SAMPLES
EPA REGIST. NO.	SAMPLE NO.	EPA REGIST. NO.	SAMPLE NO.	EPA REGIST. NO.
862-23-53219	INVSN9207 JMH-10			862-23
				862-11
				862-19

REMARKS (Include coding, disposal, exports-imports, records, storage, etc.)

Est. size 22 @
Gross annual sales 1,000,000 gal
% Pesticides 1% gross
No. of employees 5, Sun Spray only
Employee training Yes, by Nancy Wright hearly.
Product batch coding: Yes, on package/ Julian code.
Perforn in-house QA/QC: Yes,
Retain samples per batch: Yes
Private labels for other firms: Yes, Mycogen Corp.
Other firms private label for this firm: No
Distribute products elsewhere: Worldwide
Maintain complaint file: Yes
Report to EPA: Yes/no because none received
EPA correspondence rec'd: Yes
Filed, how long: Yes, forever
Guarantees given or received: No
Production records maintained: Yes
Include product name: Yes
Include EPA reg. number: Yes
Batch code: Yes
Amount per batch: Yes
Shipping records maintained: Yes
Include brand name: Yes
Include Quantity: Yes
Include name & address consignee: Yes
Include date shipped: Yes
Include name of original owner: Yes
Export pesticides: Yes, records at Market Street.
Import pesticides: No
Disposal records maintained: No
Type of disposal: None

0-0101

INSPECTOR'S STATION	INSP. NO.	SIGNATURE OF INSPECTOR
Region VII, Creamery	F2371	James M. Hudson

HEADQUARTERS COPY

Charles D Barksdale Jr PE
Sr Environmental Consultant
Environmental Department
Refining & Marketing Division

Sun Company Inc
Philadelphia Refinery
3144 Passyunk Avenue
Philadelphia PA 19145-5299
215 339 7215

ATLANTIC

Kevin J Madara
Manager Bulk Operations
Refining and Marketing Division

Sun Company, Inc.
Lubes Service Center East
Delaware Avenue & Green Streets
PO Box 426
Marcus Hook PA 19061
215 499 1365
FAX 215 499 3308

SUNOCO

Health & Safety Policy

ATLANTIC

Delaware Valley Refining Complex

The Management of the Marcus Hook and Philadelphia Refineries recognizes that we have an obligation to protect the human, physical, and financial resources of the Company. We also recognize that as a result of this obligation we have a responsibility to manage in such a way that these resources are respected, conserved, and utilized effectively. We are dedicated to providing a safe and healthy working environment through active leadership and support of occupational health, safety, fire prevention, and security programs, while protecting the environment.

Accordingly, we will:

- Furnish a work place free of known unsafe conditions in which the employee is protected from recognized hazards which are likely to cause injury or illness.

- Provide safety training on the use of safe practices and procedures for all employees.

- Hold each manager and supervisor accountable for assuring that the employees, equipment and facilities within his/her area of responsibility are in compliance with this policy and state and federal regulations.

- Hold each employee responsible for exercising good judgment, following established safety rules and procedures, utilizing available protective equipment, maintaining his/her work area in a safe condition, and identifying and correcting or reporting unsafe conditions or practices.

- Require all contractors to comply with Refinery Safety Procedures, and state and federal regulations.

- Correct unsafe conditions and correct unsafe practices whenever they are identified (and reported).

John A. Rossi
Refinery Manager

SUN

SUN Co. Inc. (R&M) Marcus Hook Refinery

	Phone #	Pager
Ed Doyle	447–1008	626
Safety & Health		
Andrew Broadbent	447–1888	506
Glenn Brownhill	447–1311	526
Ken Elia	447–5900	596
Tom Surynt	447–1318	646
Loss Control		
Don Zoladkiewicz	447–1038	566
Al Brown	447–1304	516
Dispatcher	447–1300	
Emer. Resp. Sup. G–2		
Bill Ankrum	447–1069	
Mike Boyles	447–1069	
Carol Jackson	447–1069	
John Ryan	447–1069	

	Phone #	Pager
Gary Rabik	447–1176	812
Environmental		
Judy Brackin	447–1959	901
Heather Chelpaty	447–1175	547
Medical Dept.	447–1080	

Radio Channel # 1
Emerg. Phone # 1234

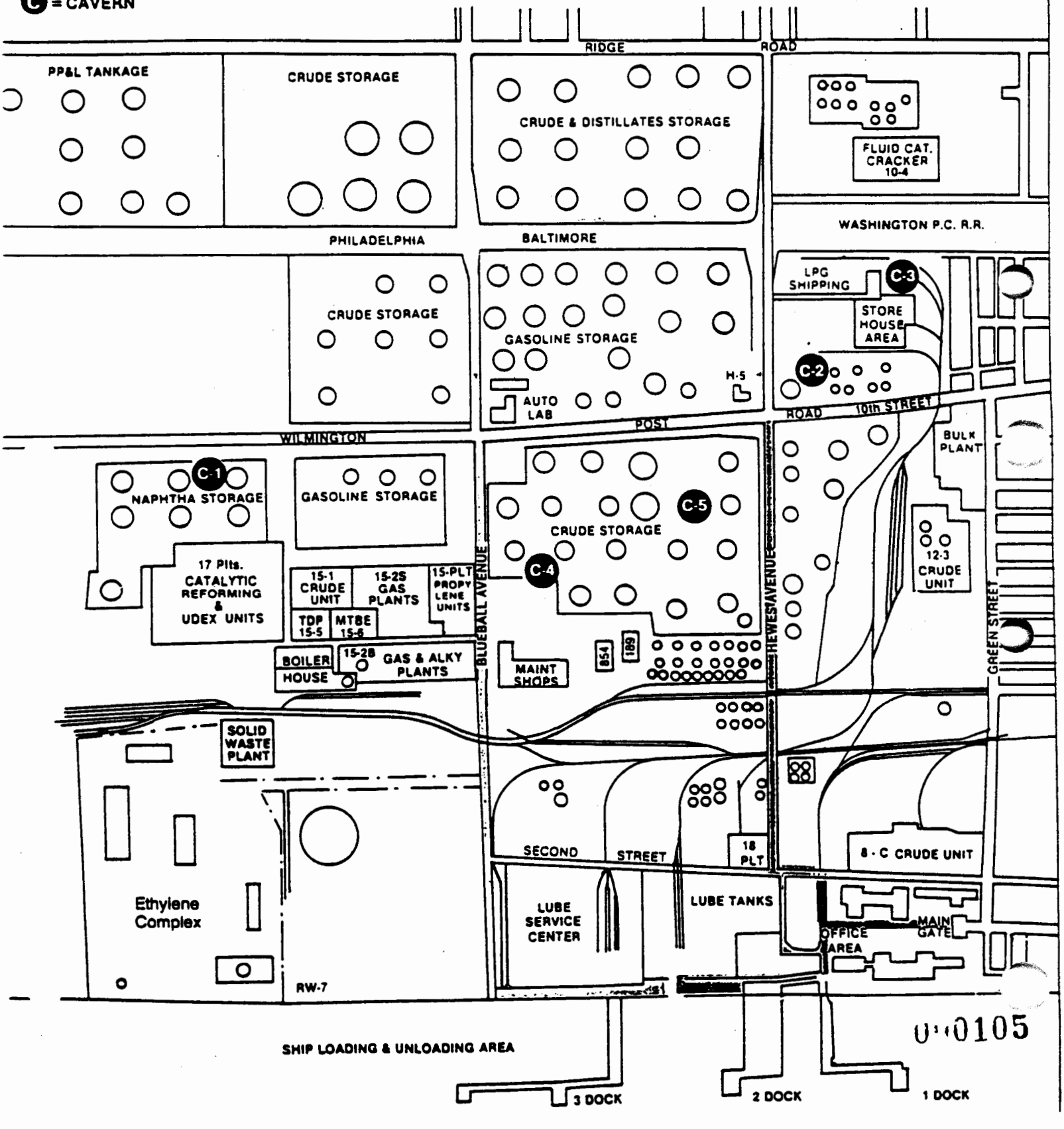
To use the pager system from an in plant phone dial 4, wait for the tone then dial the pager number wanted, wait for the tone to stop then speak clearly.

MARCUS HOOK REFINERY

GROUP A

Main Office
Service Building
ARD
R&D Shop
Marine Building
Marine Storehouse
Marine Machine Shop

KEY
- Primary Evacuation Route
- Secondary Route
- Third Route



0100105

*** SECTION 1 - IDENTIFICATION ***

PRODUCT NAME - SUNSPRAY ULT-FINE SPRAY

M.S.D.S DATE: 10/12/89
UN/NA NUMBER:

MANUFACTURER..................................:
RV0000000001 SUN REFINING AND MARKETING COMPANY
TEN PENN CENTER
1801 MARKET STREET
PHILADELPHIA PA 19103-1699

SYNONYMS........: AGRICULTURAL OIL
CAS REGISTRY NO: SEE SEC. 2
CAS NAME........: NO CLASSIFICATION - MIXTURE
CHEMICAL-FAMILY: BLEND
INFORMATION:
SUPPLIER...: JOANNE HOUCK
PHONE......: 215-977-6133

** SECTION 2 - INGREDIENTS ***

SOLVENT REFINED LIGHT PARAFFINIC PETROLEUM OIL, CAS# 64741-89-5 (THIS OIL MAY ALSO BE HYDROTREATED TO IMPROVE COLOR STABILITY); ALKYL ARYL POLYOXYETHOXY ETHANOL NONIONIC SURFACTANT AND ALKYLPHENOL COUPLER (ADDITIVE MFR CLAIMS AS PROPRIETARY INGREDIENTS). EPA REGISTRATION NUMBER 862-23.

*** SECTION 3 - PHYSICAL DATA ***

BOILING POINT........:	HIGH WITH	(DEG. F)	WIDE RANGE	(DEG. C)
MELTING POINT........:	N/A	(DEG. F)	N/A	(DEG. C)
SPECIFIC GRAVITY.....:	0.87	(H2O=1)		
PACKING DENSITY......:	N/A	(KG/M3)		
VAPOR PRESSURE.......:	< 0.0001	(MM HG AT 20C)		
VAPOR DENSITY........:	8+	(AIR=1)		
SOLUBILITY IN WATER.:	NIL	(% BY VOL)		
PH INFORMATION.......:	N/A	AT CONC.	G/L H2O	
% VOLATILES BY VOL..:	NIL			
EVAPORATION RATE.....:	1000X SLOWER		(ETHYL ETHER=1)	
OCTANOL/WATER COEFF.:	N.D.			
APPEARANCE...........:	COLORLESS FLUID.			
ODOR.................:	LITTLE ODOR.			
ODOR THRESHOLD.......:	N.D.	(PPM)		

*** SECTION 4 - FIRE AND EXPLOSION DATA ***

FLASH POINT	340 MINIMUM COC	(DEG. F)	171 MINIMUM COC	(DEG. C)
AUTOIGNITION TEMP.	650 ESTIMATED	(DEG. F)	343 ESTIMATED	(DEG. C)

---NFPA CLASSIFICATION---		------HAZARD RATING------	
HEALTH	- 0	0 - LEAST	3 - HIGH
FIRE	- 1	1 - SLIGHT	4 - EXTREME
REACTIVITY	0	2 - MODERATE	

SPECIFIC HAZARD
---FLAMMABLE LIMITS IN AIR---
LOWER EXPLOSIVE LIMIT (LEL) NOT DETERMINED % VOL.
UPPER EXPLOSIVE LIMIT (UEL) NOT DETERMINED % VOL.

*** SECTION 4 ***

FIRE AND EXPLOSION HAZARDS ----------

CAN BE MADE TO BURN (FLASH POINT GREATER THAN 200F).

EXTINGUISHING MEDIA ----------

WATER FOG. MECHANICAL FOAM. DRY CHEMICAL POWDER. CARBON DIOXIDE.

SPECIAL FIRE FIGHTING INSTRUCTIONS----

WEAR SELF-CONTAINED BREATHING APPARATUS WHEN FIRE FIGHTING IN CONFINED SPACE.

*** SECTION 5 - HEALTH HAZARD INFORMATION ***

EXPOSURE LIMITS---------- GOVERNMENT REGULATION

OTHER LIMIT: OIL MIST: 5 MG/M3 (OSHA PEL/ACGIH TLV)

*** ROUTES OF EXPOSURE AND EFFECTS ***

INHALATION ----------

NO ACUTE EFFECTS EXPECTED TO TWICE EXPOSURE LIMIT.

SKIN ----------

PRACTICALLY NON-TOXIC IF ABSORBED (LD50 GREATER THAN 2000 MG/KG). MODERATE IRRITATION REMOVES NATURAL OILS & FATS FROM SKIN WITH PROLONGED OR REPEATED CONTACT. DRAIZE SKIN IRRITATION SCORE IS: 1.84 OUT OF 8.0 ESTIMATED DERMAL LD50 IN RABBITS IS: >5,000 MG/KG

EYE ----------

NO EYE EFFECT EXPECTED. IRRITATION SCORE 6.7 0.0 0.0 0.0 OUT OF 110.0 AT 1 24 48 72 (HOURS)

INGESTION ----------

HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD IF SWALL AND/OR VOMITING OCCURS - CAN ENTER LUNGS AND CAUSE DAMAGE. ESTIMATE. LD50 IN RATS IS: >30 GM/KG.

*** FIRST AID ***

INHALATION ----------

NONE NORMALLY REQUIRED.

SKIN ----------

WASH WITH SOAP AND WATER UNTIL NO ODOR REMAINS. IF REDNESS OR SWELLING DEVELOPS, OBTAIN MEDICAL ASSISTANCE. WASH CLOTHING BEFORE REUSE.

EYE ----------

FLUSH WITH WATER.

INGESTION ----------

DO NOT INDUCE VOMITING! DO NOT GIVE LIQUIDS! OBTAIN EMERGENCY MEDICAL ATTENTION. SMALL AMOUNTS WHICH ACCIDENTALLY ENTER MOUTH SHOULD BE RINSED OUT UNTIL TASTE OF IT IS GONE.

*** SECTION 6 - REACTIVITY DATA ***

STABILITY----------

STABLE.

INCOMPATIBLE MATERIALS----------

STRONG OXIDIZERS

HAZARDOUS DECOMPOSITION----------

PRODUCTS: COMBUSTION WILL PRODUCE CARBON MONOXIDE AND ASPHYXIANTS

POLYMERIZATION----------

WILL NOT OCCUR.

*** SECTION 7 - SPECIAL PROTECTION INFORMATION ***

VENTILATION----------

VENTILATE AS NEEDED TO COMPLY WITH EXPOSURE LIMIT.

*** PERSONAL PROTECTIVE EQUIPMENT ***

EYE ----------

PRODUCT MINIMALLY IRRITATING TO EYES. LOCAL SAFETY POLICY DECISION.

GLOVES ----------

IMPERVIOUS GLOVES RECOMMENDED WHEN PROLONGED SKIN CONTACT CANNOT BE AVOIDED.

RESPIRATOR ----------

CONCENTRATION-IN-AIR DETERMINES PROTECTION NEEDED. USE ONLY NIOSH CERTIFIED RESPIRATORY PROTECTION. RESPIRATORY PROTECTION USUALLY NOT NEEDED UNLESS PRODUCT IS HEATED OR MISTED.

OTHER ----------

IF CONTACT IS UNAVOIDABLE, WEAR IMPERVIOUS PROTECTIVE GEAR. LAUNDER SOILED CLOTHES.

*** SECTION 8 - DISPOSAL PROCEDURES ***

AQUATIC TOXICITY ----------

NOT DETERMINED

SPILL, LEAK OR RELEASE----------

CONTAIN SPILL. ADVISE EPA; STATE AGENCY IF REQUIRED. ABSORB ON INERT MATERIAL.

WASTE DISPOSAL METHOD----------

FOLLOW FEDERAL, STATE AND LOCAL REGULATIONS. DO NOT FLUSH TO DRAIN/ STORM SEWER. CONTRACT TO AUTHORIZED DISPOSAL SERVICE.

*** SECTION 9 - SPECIAL PRECAUTIONS ***

STORAGE AND HANDLING CONDITIONS------

NFPA CLASS IIIB STORAGE. WASH THOROUGHLY AFTER HANDLING.

*** SECTION 10 - ADDITIONAL PRECAUTIONS AND LABELS ***

SUNSPRAY ULTRA FINE SPRAY IS IN EPA HAZARD CATEGORY III FOR SKIN EFFECTS (MODERATE IRRITATION AT 72 HOURS) AND CATEGORY IV FOR EYE EFFECTS (MINIMAL EFFECTS CLEARING IN LESS THAN 24 HOURS).

0.0109

LIMIT OF WARRANTY AND LIABILITY

This product conforms to the description on this label and is reasonable for the purpose set forth on this label when used according to the label directions and under the specified label conditions. THE MANUFACTURER DISCLAIMS ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES OF MERCHANTIABILITY AND FITNESS FOR PARTICULAR PURPOSE. Buyer and all users assume all risks and responsibility for loss or damage if this product is used, stored, handled or applied under any condition not reasonably foreseeable or beyond the manufacturer's control, or not as explicitly set forth in this label. THE LIMIT OF THE MANUFACTURER'S LIABILITY SHALL BE THE PURCHASE PRICE FOR THE QUANTITY INVOLVED. IN NO EVENT SHALL THE MANUFACTURER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

MYCOGEN Corporation
5451 Oberlin Drive • San Diego, California 92121
(800) 745-7476

SunSpray®

ULTRAFINE SPRAY OIL

A superior horticultural spray oil for insect and mite pest management.

ACTIVE INGREDIENT	
Paraffinic Oil*	98.8%
INERT INGREDIENT	
Emulsifier	1.2%
*Unsulfonated Residue of Paraffinic Oil	92.0% Min.
*50% Distillation Point of Paraffinic Oil	414°F
*10%-90% Distillation Range of Paraffinic Oil	65°F Max.
*Flash Point	345°F
Weight Per Gallon	7.1 lbs.

CAUTION

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Avoid contact with eyes, skin and clothing. See following pages for additional precautionary statements. Harmful if swallowed. Avoid breathing of spray mists or vapors. Wash hands after using. Avoid contamination of feed and foodstuffs.

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Do not induce vomiting. Call a physician immediately.
If on skin: Wash with soap and water.
If in eyes: Flush with water.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters. Apply this product only as specified on this label.

EPA Registration No. 862-23-53219EPA Est. No. 862-PA-1

Distributed by:

MYCOGEN Corporation
5451 Oberlin Drive • San Diego, California 92121
(800) 745-7476

969101

TABLE OF CONTENTS

STORAGE AND DISPOSAL

1. **Prohibitions:** Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.
2. **Storage:** Store in a cool, dry, locked area out of the reach of children.Keep oil container tightly closed in storage to prevent entry of water.
3. **Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
4. **Container Disposal:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

USE PRECAUTIONS

Keep oil container tightly closed in storage to prevent entry of water. All horticultural oils interfere with or slow plant transpiration and respiration during the period of evaporation. Phytotoxicity may result if sprayed to plants during periods of prolonged high temperature and high relative humidity. Do not spray to plants under moisture stress.

Do not use this product with dimethoate (Cygon) or fungicides such as captan (Captan), anilazine (Dyrene), folpet (Folpet), dinocap (Karathane), oxythioquinox (Morestan), or any other product containing sulfur. If possible, either keep the spray equipment used for these compounds seperate from the equipment used for oil, or make sure that the sprayer is thoroughly cleaned so that no residue from these compounds remain. Do not use with dimethoate or Sevin 50W formulation (carbaryl) on deciduous fruit trees.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any type of irrigation system.

MIXING INSTRUCTIONS

1. Add sufficient water to the mixing tank to allow proper agitation by pump or paddles.
2. Add other desired pesticides. If wettable powder formulation, mix the water and powder thoroughly so that the powder is totally suspended in the water before the oil is added. If other pesticide to be added is an emulsifiable formulation, do so after the oil and water has been thoroughly mixed.
3. Add oil under agitation when tank is 3/4 full. Top off with water to form milky solution.
4. Maintain agitation until solution is used.
5. In small equipment lacking agitators, stir or shake diluted spray frequently during application.

6. It is important for users to read and follow all directions and restrictions on the labels of the proposed tank mix products.
7. Flush fluid in sprayer hose lines back into tank reservoir if fluid is allowed to stand for more than 20 minutes.

GENERAL INFORMATION

This product controls adelgids, aphids, lace bugs, leafhoppers, leafminers (larvae), mealybugs, mites, plant bugs, psyllids, sawfly larvae, scales, whitefly and eggs of aphids, mites and certain caterpillars on vegetables, fruits, tree nuts, certain field crops, shrubs, trees, greenhouse plants, ornamental foliage plants and flowers. This product can be applied up to harvest.

APPLICATION INSTRUCTIONS

The target pest must be completely covered with spray. Oil residue on the plant surface often acts as a feeding and oviposition deterrent. However, the primary target is the pest itself as oil is a contact pesticide.

DILUTE APPLICATIONS (greater than 150 gallons spray per acre) in most cases, ensure the best coverage.

CONCENTRATE APPLICATIONS (usually from 45 to 125 gallons spray per acre) may reduce coverage and effectiveness. Concentrate application includes the use of low volume (from 10 to 100 gallons spray per acre) air-blast or air-carrier sprayers. A concentrate application can provide satisfactory results as long as the spray unit is properly engineered, calibrated and operated. Speed of travel is extremely important. Tractor speed from 1 M.P.H. to 4 M.P.H. is recommended depending on crop, crop size and target pest.

AERIAL APPLICATIONS — Use only as an emergency application when soil conditions do not permit regular ground application. Helicopter only. Apply quantity of product shown for each listed crop for control of listed insects in sufficient water to make a minimum of 20 gals. dilute spray per acre.

TIMING THE TREATMENT

Applicator must determine the precise timing to fit local growth and climatic conditions.

DO NOT EXCEED MAXIMUM RATES OR APPLY MORE OFTEN THAN RECOMMENDED.

MAY BE USED UP TO DAY OF HARVEST.

USES

TANK MIXES: This product may be mixed with other pesticides to improve the level of kill or enhance coverage. Users should read and

follow all directions and restrictions on the labels of the proposed tank mix products.

RE-ENTRY STATEMENT

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons. Do not enter treated areas without protective clothing until sprays have dried. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in treated areas or in an area about to be treated with this product. When oral warnings are given, warning shall be given in a language customarily understood by workers. Written warnings must include the following information: "CAUTION — Area treated with Sunspray UltraFine Spray Oil on (date). Do not enter without appropriate protective clothing until sprays have dried." In case of accidental exposure, refer to Statement of Practical Treatment found on this product label.

NOTE: This pesticide is to be sold ONLY in this original unbroken container.

0-0112

TABLE 1A

CROP	PEST	APPLICATION RATE — GALLONS/100 GAL.			TIME OF APPLICATION (STAGE OF DEVELOPMENT)
		SUNSPRAY® 6E FED 1/2% GAL. WATER	CONCENTRATE FED 25-1/2% GAL. WATER	AERIAL* 6E 20 GAL. SPRAY	
Apple	Aphids (eggs)	2	4-8	4-8	Dormant or delayed dormant to 1/2" green
	Bugs (immature) including Apple Red Bug	2	4-8	4-8	
	Mites (eggs) including European Red Mite	2	4-8	4-8	
	Scales (Hard, soft)	2	4-8	4-8	
	Scurfy Scale	3	4-8	4-8	
	Fruit Tree Leaf Roller (eggs)	3	4-8	4-8	
	Mites	1	4	4	Summer (foliar or cover) or post harvest. Do not apply over fruit after waxy bloom forms.
Pear	European Red Mite (eggs)	1-2	4-8	4-8	Dormant or delayed dormant (up to and including petal fall)
	Pear Leaf Blister Mite (eggs)	3	4-8	4-8	
	Pear Psylla	2	4-8	4-8	
	Scales	2	4-8	4-8	
	Fruit Tree Leaf Roller (eggs)	3	4-8	4-8	
	Two-Spotted Spider Mite	1	4	4-8	Summer (foliar or cover) or post harvest
	Brown Mite	1	4	4-8	
	Pear Rust Mite	1-2	4-8	4-8	
	Pear Leaf Blister Mite	1.5-2	4-8	4-8	
	Pear Psylla	1.5-2	4-8	4-8	

*Aerial application should be used only as emergency application when soil conditions do not permit regular ground application (helicopter only).

TABLE 1B

CROP	PEST	APPLICATION RATE — GALLONS OIL: DILUTE SPRAY PER 100 GAL. WATER	APPLICATION RATE — GALLONS OIL: CONCENTRATE PER 25-125 GAL. WATER	APPLICATION RATE — GALLONS OIL: AERIAL* GAL. 25 GAL. SPRAY	TIME OF APPLICATION (STAGE OF DEVELOPMENT)
Almond Apricot Cherry	Aphids (eggs) Bugs (immature) Tent Caterpillars Fruit Tree Leaf Roller (eggs) San Jose Scale	2-3 2	6-8 4-6	6-8	Dormant or delayed dormant Dormant
	Mites and Scales	1-1.5	4-6	4-6	Summer (foliar or cover) or post harvest. — Application should not be made over oil sensitive varieties — Do not apply to trees lacking adequate moisture
Peach Nectarine	Aphids (eggs) Bugs (immature) Fruit Tree Leaf Roller (eggs) Mites (eggs) Peach Twig Borer (hibernacules)	3	6-8	6-8	Dormant or delayed dormant
	Cottony Peach Scale San Jose Scale	2	4-6		Dormant
	Mites and Scales	1-2	4-6	4-6	Summer (foliar or cover) or post harvest.

*Aerial application should be used only as emergency application when soil conditions do not permit regular ground application (helicopter only).

TABLE 1B (continued)

CROP	PEST	APPLICATION RATE — GALLONS OIL: DILUTE SPRAY PER 100 GAL. WATER	APPLICATION RATE — GALLONS OIL: CONCENTRATE PER 25-125 GAL. WATER	APPLICATION RATE — GALLONS OIL: AERIAL* GAL. 25 GAL. SPRAY	TIME OF APPLICATION (STAGE OF DEVELOPMENT)
Plum Prune	Aphids (eggs) Scales Mites (eggs)	1.5-2	6-8	6-8	Dormant or delayed dormant to 1/2" green tip
	Mites Scales	1-1.5	4-6	4-6	Summer (foliar or cover) or post harvest. — Do not apply over certain fresh market fruits after bloom starts to form as the oil spray will remove the waxy bloom — Application should not be made over oil sensitive varieties
Pecan	Aphids (eggs) Scales Mites (eggs)	3	6-8	6-8	Dormant
	Aphids Mites	1-1.5	4-6	4-6	Summer (foliar or cover) or post harvest.

*Aerial application should be used only as emergency application when soil conditions do not permit regular ground application (helicopter only).

TABLE 1C

CROP	PEST	APPLICATION RATE — GALLONS OIL		COMMENTS
		DILUTE SPRAY PER 100 GAL WATER	LOW VOLUME* SPRAY PER 80-125 GAL WATER	
Lemon and Grapefruit	Mites Scales including California Red Scale	1.0-1.4 1.0-1.6	10-20	For best results, spray during fall, early winter and spring months when Red Scale are more easily controlled and trees generally less reactive to oils. For all citrus oil sprays, ensure adequate soil moisture; leaves should not wilt before noon.
Navel* & Valencia Oranges, Other Citrus Varieties Including Non-Bearing	Mites including: Rust Mite Spider Mites Scales including: Black Scale California Red Scale Whitefly and Blackfly Sooty Mold	1.0-1.4 1.0-1.3 1.3-1.6 1.0-1.3 1.0-1.3	10-20	For low volume oil spray treatment during the spring, application should be discontinued as soon as temperatures go above 90°F during the day or relative humidity is expected to go down to 20% or below. Oils applied after Oct. may increase cold damage to trees. Oils applied in Aug. and Sept. may affect solids content and retard coloring. The addition of a tank mix pesticide will improve performance against scales.

*Low volume applications require a minimum of 10 gallons of oil per acre for trees up to 10 feet in height plus 1 gallon per acre for each additional foot of average tree height. For navels, with the development of bloom, the amount of spray oil added to the 10 gallon-per-acre dosage for trees taller than 10 feet, in gallons per acre additional foot of average tree height, should be reduced to 3/4 gallon and then to 1/2 gallon at petal fall and postbloom through the June drop period.

TABLE 2
SHADE TREES, SHRUBS, ORNAMENTALS, FLOWER & FOLIAGE PLANTS, CHRISTMAS TREES

CROP OR PLANT	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Shade Trees* and Shrubs including Conifers, Deciduous Broadleaf Evergreens and Woody Ornamentals Ornamental Trees* Shrubs along City Streets, Other Rights-of-Way including Conifers, Deciduous and Broadleaf Evergreens	Aphids Adelgids Bugs (immature) Certain Caterpillars Eriophyid Mites Gall Mites Lace Bug Leaf Beetle Larvae Leaf Miner Mealybug	2-4 1-3	Winter dormant period as needed Summer (foliar or cover) as needed
Flowers & Foliage Plants Including Roses and Other Flowering Shrubs, Foliage Ornamentals and Bedding Plants	Psyllids (immature) Sawfly (larvae) Scales (immature) Spider Mites Whiteflies (immature)	2-3 1-2	Winter dormant period as needed Summer (foliar or cover) as needed
Christmas Trees*	Aphids Adelgids Scale (soft & hard) (immature) Spider Mites	2-4 1-3	Winter Summer

*Oil removes the glaucus (blue) bloom from such evergreens as Colorado Blue Spruce and Koster Spruce. Always use lower dosage or test spray oil sensitive plants such as Cryptomeria, Sawara Tree, Chamaecyparis, Juniper, Japanese Holly and Spruce. Tendency toward sensitivity: Red Cedar and Douglas Fir. Do not spray walnut foliage.

Caution: Spray no more than 4 times during the growing season; two week minimum application interval. Do not spray when buds have fully opened and shoot elongation is occuring. Do not spray when there is obvious moisture deficit in leaves, or the plant is under stress. Fall dormant treatments are not recommended. Keep away from open blooms- bleaching and sporting has been observed with the open blooms of certain plants.

TABLE 3A SMALL FRUITS

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Blueberry	Mites	2	Foliage
	Sawfly (eggs)	2	
	Scales	3	Dormant
Strawberry	Aphids	1	Dormant and foliage
	Mites		

TABLE 3B SMALL FRUITS

CROP	PEST	APPLICATION RATE — GAL. OF OIL		TIMING OF APPLICATION
		DILUTE SPRAY	CONCENTRATE SPRAY* (40-100 GALS. SPRAY/ACRE)	
Grape	Mealybug	4-6 Gal. with 200 to 300 Gal. Water Per Acre	Not Recommended	Dormant — a tank mix using an insecticide improves control
	Mealybug	Not Recommended	4	Spray when crawlers are active and exposed — usually around early summer (around July 1)
	Leafhopper	Not Recommended	4	Best results will occur when sprayed during first brood. Sprays after grapes are more than 1/4" diameter may affect bloom.

*Air-carrier or air-blast type sprayers strongly recommended to avoid plant injury and reduce affect on bloom of table grapes.

0-0115

TABLE 4 — VEGETABLES

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Asparagus Beans Beet Corn Cucurbits Pepper Radish Squash Tomato	Aphids Mites Beetle Larvae Leafminers Certain Caterpillars Thrips Leafhopper Whitefly	1-2	As needed

TABLE 5 — FIELD CROPS

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TIME OF APPLICATION
Corn (sweet & field) Sugar Beet	Aphids Mites Leafminers Certain Caterpillars including Corn Earworm, Rootworm and Armyworm Whitefly Bugs (immature)	2	As needed

INTERIORSCAPES*

CROPS	PEST	GAL. OIL PER 100 GAL. WATER	TABLESPOONS OIL IN 1 GAL. WATER	COMMENTS
Chrysanthemum Diffenbachia Dracaena Ferns Ficus Gardenias Jade Plant Palms Philodendron	Aphids Leafminers Mealybugs Scales Spider Mites Whitefly (immature)	1-2	2.5-5.0	Do not apply to plants in direct sunlight behind glass. Do not use on Coconut Palms and Maidenhair Ferns. Chrysanthemum blooms have shown phytotoxic symptoms at the higher rate. Applicator should conduct a test for phytotoxicity by treating a few specimens before making a large-scale application.

*Protect floor, floor coverings and furnishings from overspray.

MISCELLANEOUS:

Figs: Dormant or delayed dormant: Fig Scale — Use 3 gals. in 100 gal. water as a foliar spray. Mites, Mealybug, Scale — Use 2 gals. per 100 gals. water.

Olives: Postbloom through August and Postharvest: Scales — Use 1.5 gals. per 100 gal. water. Apply at 400 to 800 gals. per acre.

Banana, Plantains: Use as needed to control Yellow Sigatoka Disease — Use 1-1.5 gal. per 100 gals. water. This application is also effective in loosening sooty mold fungus and in preventing its formation by the control of Aphids, Mealybugs, Scales and Whitefly.

Avocado (Haas Only) and Mangos: Use 1-1.5 gals. per 100 gals. water as needed to control Aphids, Mealybugs, Scales and Whitefly.

0-0116

TABLE G — GREENHOUSE

CROP OR PLANT	PEST	TABLESPOONS OIL IN 1 GAL. WATER	GALS. OIL PER 100 GAL. WATER	SPECIFIC COMMENTS
Azalea	Aphids	2.5-5.0	1-2	Do not use on Coconut Palms or Maidenhair Ferns Chrysanthemum and Geranium blooms have shown phytotoxic symptoms at the 2 gallon rate. *Although no problems with phytotoxicity have been seen at recommended rates, we recommend that the applicator conduct a phytotoxicity test on 1 or 2 of the specific plants that are to be treated.
Begonia	Fungus Gnats	2.5-5.0	1-2	
Camellia	Bugs	2.5-5.0	1-2	
Chrysanthemum	Leafminers	2.5-5.0	1-2	
Crown of Thorns	Mealybugs	2.5-5.0	1-2	
Diffenbachia*	Scales (soft & hard)	2.5	1	
Easter Lilly	Spider Mites	2.5-5.0	1-2	
Fern	Thrips	2.5-5.0	1-2	
Gardenia	Whitefly (immature)	2.5-5.0	1-2	
Geranium		2.5-5.0	1-2	
Hibiscus Foliage		2.5-5.0	1-2	
Jade Plant		2.5-5.0	1-2	
New Guinea Impatiens		2.5-5.0	1-2	
Palm		2.5-5.0	1-2	
Philodendron		2.5-5.0	1-2	
Poinsettia		2.5	1	
Portulaca		2.5-5.0	1-2	
Reiger Begonia		2.5-5.0	1-2	
Zinnia		2.5-5.0	1-2	
Leaf Polish for Hardy Plants		2.5	1	

FREQUENCY OF APPLICATION: For the greenhouse pests listed, use once a week initially, then as the pest is controlled decrease the frequency to every 2-3 weeks as needed.

Application safety during bloom period should be determined for each individual species of plant to be treated by conducting a small test.

PULL HERE TO OPEN
PRESS TO RESEAL

SUN

SUNSPRAY® 6E

A superior horticultural spray oil for insect and mite pest management.

	By Wt.
ACTIVE INGREDIENT: Refined Petroleum Distillate*	98.8%
INERT INGREDIENT: Emulsifier	1.2%
	100%

*Unsulfonated Residue of Petroleum Distillate	92.0% Min.
*50% Distillation Point of Petroleum Distillate	414°F
*Flash Point	345°F
Weight per Gallon	7.1 lbs.
Net Contents	55 gal.

CAUTION: KEEP OUT OF REACH OF CHILDREN

SEE ADDITIONAL PRECAUTIONARY STATEMENTS INSIDE BOOKLET.
SEE DIRECTIONS FOR USE INSIDE BOOKLET.
EPA Registration No.862-11

SUN Sun Refining and Marketing Company

TEN PENN CENTER, 1801 MARKET STREET, PHILADELPHIA, PA 19103

EPA EST. No. 862-PA-1

Initd CDB
10 April 92

0-0117

PULL HERE TO OPEN
PRESS TO RESEAL

SUNSPRAY® 9E

A superior horticultural spray oil

	By Wt.
ACTIVE INGREDIENT: Refined Petroleum Distillate*	98.8%
INERT INGREDIENTS: Emulsifier	1.2%
	100%

*Unsulfonated Residue of Petroleum Distillate	92.0% Min.
*50% Distillation Point of Petroleum Distillate	455°F
*Flash Point	375°F
Weight per Gallon	7.2 lbs.
Net Contents (Gal.) Drums/Railcar	55/20,000

CAUTION: KEEP OUT OF REACH OF CHILDREN

SEE ADDITIONAL PRECAUTIONARY STATEMENTS INSIDE BOOKLET.
SEE DIRECTIONS FOR USE INSIDE BOOKLET.

EPA Registration No. 862-19

Sun Refining and Marketing Company

TEN PENN CENTER, 1801 MARKET STREET, PHILADELPHIA, PA 19103

10 April 92

EPA-EST No.-862-PA-1

0-0113

PULL HERE TO OPEN
PRESS TO RESEAL

SunSpray® Ultra-Fine™ SPRAY OIL

A superior horticultural spray oil for insect and mite pest management.

ACTIVE INGREDIENT	
Paraffinic Oil*	98.8%
INERT INGREDIENT	
Emulsifier	1.2%
*Unsulfonated Residue of Paraffinic Oil	92.0 % Min.
*50% Distillation Point of Paraffinic Oil	414°F
*10%-90% Distillation Range of Paraffinic Oil	65° F Max.
*Flash Point	345° F
Weight per Gallon	7.1 lbs.

CAUTION: KEEP OUT OF REACH OF CHILDREN
SEE ADDITIONAL PRECAUTIONARY STATEMENTS INSIDE BOOKLET
SEE DIRECTIONS FOR USE INSIDE BOOKLET
EPA Registration No. 862-23
Sun Refining and Marketing Company Ten Penn Center
Philadelphia PA 19103

Inf'd CDB 10 April 92

EPA EST. NO. 862-PA-1

NET VOL. 55 GALLONS

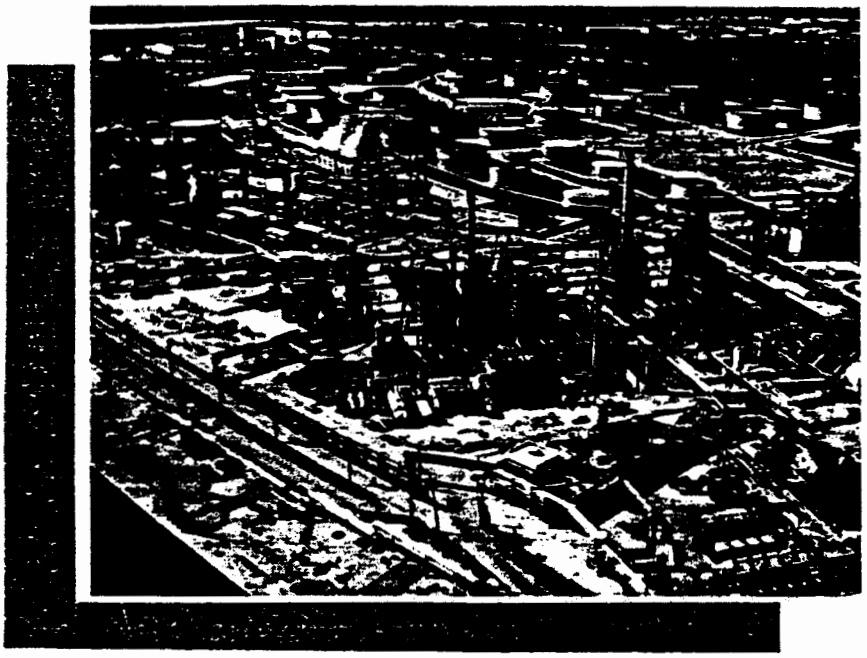
0119

SUN

Safety and Security Requirements for Contractors Working at Sun Refining and Marketing Company Refineries

Sun Refining and Marketing Company
Marcus Hook Facility
Revised: April 1990

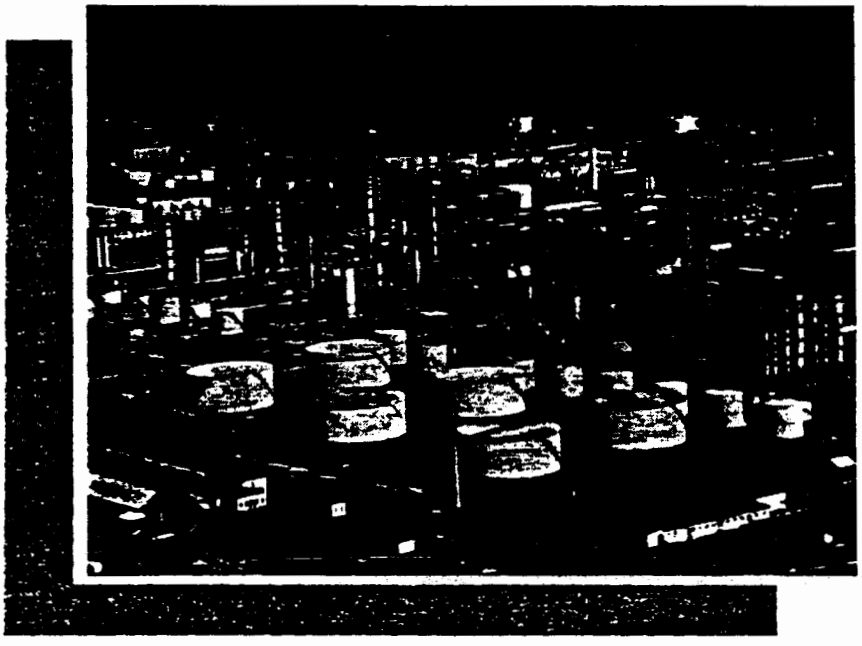
Delaware Valley Refining Complex



SUN

Sun Company, Inc. (R&M)

SUNOCO ATLANTIC



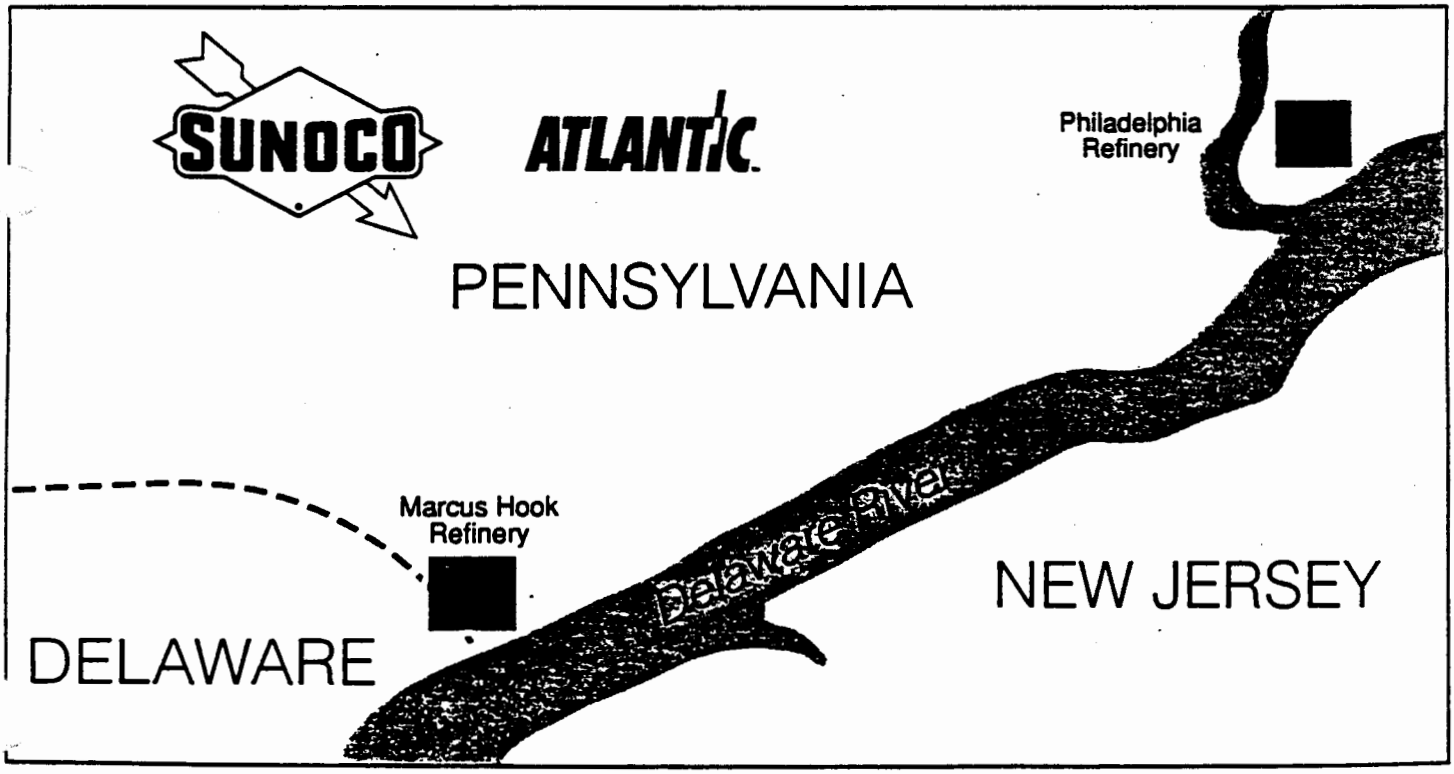
Committed to Health and Safety

Sun is committed to promoting health and safety through programs of awareness, compliance, prevention and protection. These programs are proactive in nature and include:

- Health, safety and environmental training for all employees.
- Special safety training for all new employees and contractors.
- Regular safety meetings and audits of the facilities.
- Proactive use of personal protective equipment.
- Effective Hazard Communication program.
- Industrial hygiene program.
- Emergency Response training and drills.
- Routine safety inspections.
- Continuous development and review of safety and operating procedures.

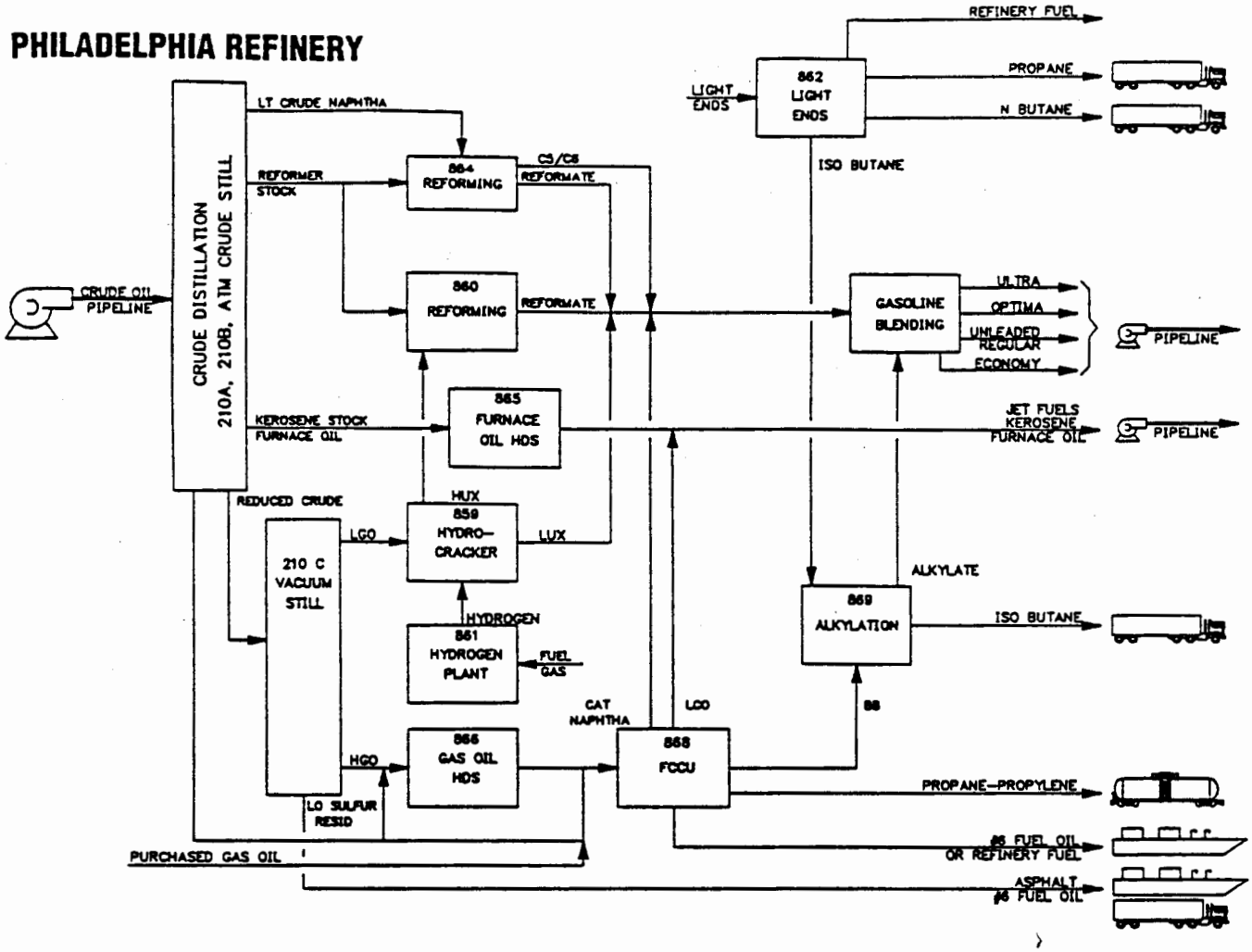
Sun facilities are pacesetters in the development of emergency response and industrial/community mutual aid plans. With the close involvement of local and emergency response leaders, these plans are coordinated with the established community emergency procedures.

Sun and the community have worked together to promote public awareness and to prepare for emergency situations. Sun is committed to protecting the well being of its employees, contractors, the community and the environment.

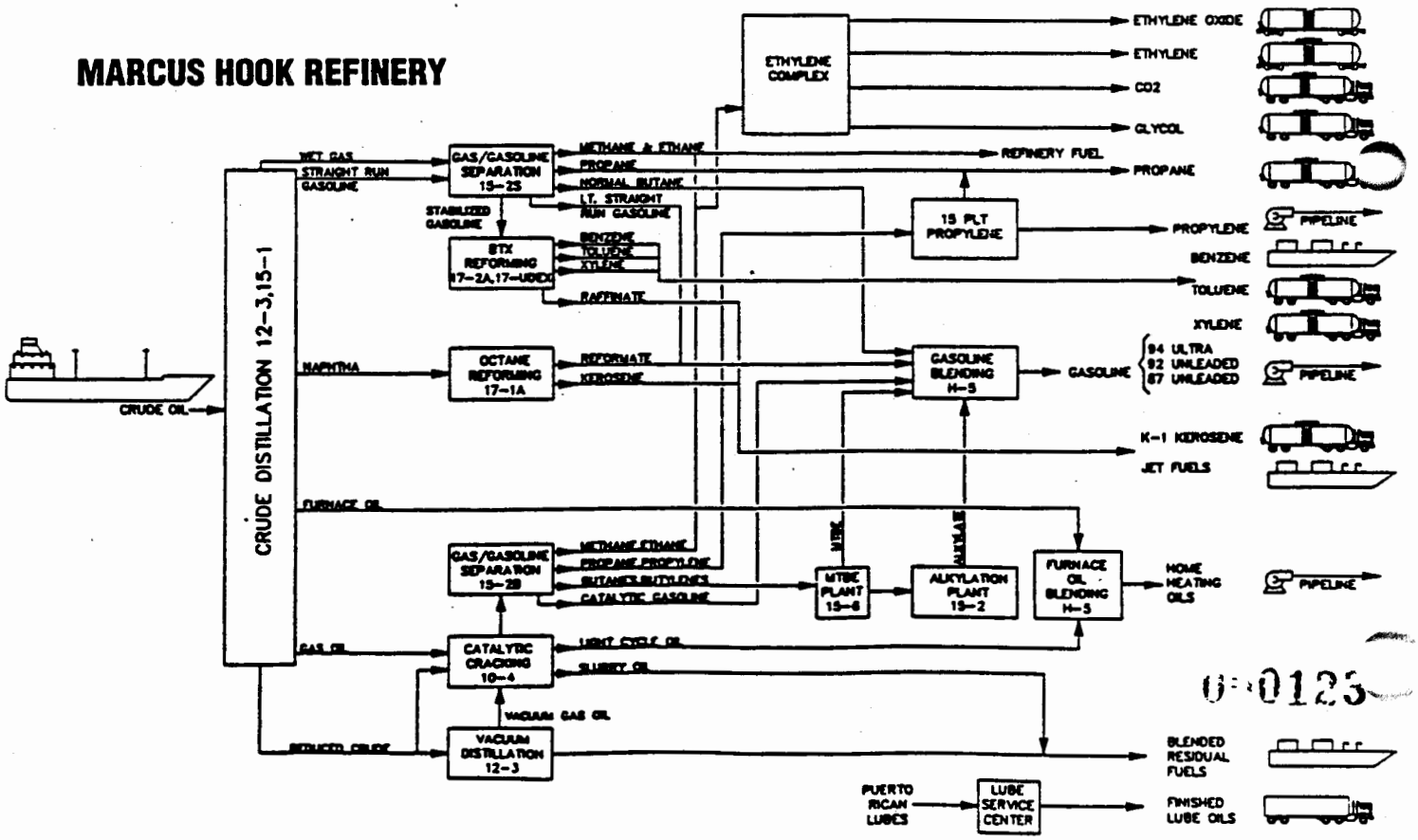


SIMPLIFIED OIL FLOW PLAN

PHILADELPHIA REFINERY



MARCUS HOOK REFINERY



Welcome to the Delaware Valley Refining Complex, the largest in the Sun refinery system, processing approximately 300,000 barrels of crude oil a day. The complex consists of two refineries sitting on more than 2600 acres in Marcus Hook and Philadelphia, Pennsylvania.

Sun...the beginning

Originally built in 1870, the Philadelphia refinery borders the Schuylkill River and is divided into two operating areas— the North and South Yards. The North Yard houses the boilerhouse, the propane terminal and the heavy fuel and asphalt facilities. All of the major processing units, the tank farm and the light product barge dock can be found in the South Yard. Crude oil for the facility is received from the Fort Mifflin Terminal.

The first barrel of crude at Marcus Hook was refined 32 years later, in 1902. With more than one mile of its edge on the Delaware River, the refinery receives all of its crude by tanker. Processing at Marcus Hook is also divided into two operating areas—East and West. The East side houses one of the two crude units, the catalytic cracker, and transfer and shipping activities. The West side includes a number of processing facilities including a crude unit, gas plant, reforming area, and UDEX, alkylation and MTBE plants. Processing activity for Sun's petrochemicals are located at the facility's Ethylene Complex, just south of the Pennsylvania border in Claymont, Delaware.

More than 1300 employees dedicate themselves to the safe and efficient operation of these facilities on a daily basis. It is their commitment that provides the most important ingredient in a caring attitude toward our stewardship of the environment.

Focus on Quality

An uncompromising commitment towards quality of products and services establishes Sun as a preferred supplier to our customers. To meet our performance standard, Sun is dedicated to:

- ✓ Fully understand our customers' needs.
- ✓ Perform all tasks correctly the first time.
- ✓ Remain dedicated to continuous improvement in quality and productivity.
- ✓ Supply products and services which help differentiate our organization from our competitors based on quality and superior value.

Environmentally Caring

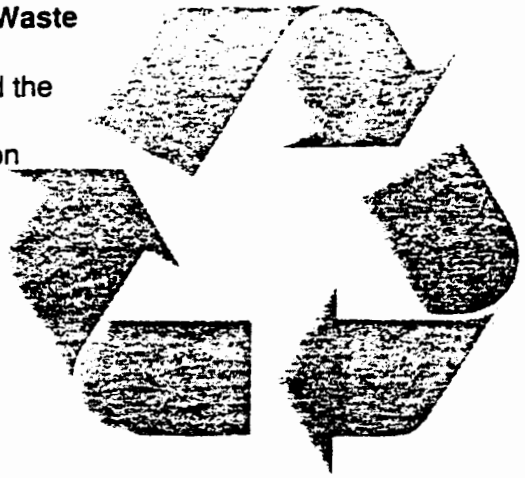
The Delaware Valley Refining Complex plays a major role in supporting one of Sun's highest priorities——the stewardship of the environment.

Compliance

It's an ongoing goal is maintaining 100% compliance with all applicable federal, state and local environmental laws and regulations. Toward that end, operations of all systems are designed with concern for air, water and solid waste emissions, and strict operational procedures are followed to insure compliance. On a regular basis, environmental audits are conducted to review programs, procedures and emission levels.

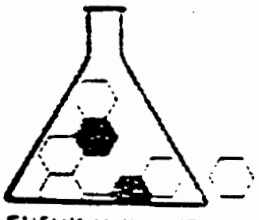
Pollution Prevention and Waste Minimization

Sun has voluntarily joined the Environmental Protection Agency's pollution prevention program which requires participating companies to reduce emissions of certain pollutants up to 50% by 1995.



In an effort to minimize waste, the purchase and storage of chemicals and catalyst is actively controlled. A facility-wide recycling program—long established for metal and catalyst—now includes aluminum cans, wood and paper.

EAC



CHEMICAL INDUSTRY COUNCIL

Sun... A Good Neighbor

We are proud to be an active member in the communities surrounding our Marcus Hook and Philadelphia refineries and encourage our employees to participate and take leadership positions in community activities including: United Way, American Red Cross, Environmental Advisory Council, Hazardous materials Advisory Council, American Association of Chemical Engineers, Chemical Industry Council, Chamber of Commerce, Local Emergency Planning committees, and more than a dozen local fire departments and educational institutions ranging from elementary to college level.

RECEIPT FOR SAMPLES

SAMPLE NUMBER(S)

SAMPLES COLLECTED (Describe fully, List Registration, Lot, Batch, Model, Serial Numbers and other positive identification.)

(1 - 2½ gal Jug) Sun Spray; intd "Sun Spray ***** Ultra Fine Spray Oil *****
Active ingredient Paraffinic Oil - 98.8% ****
Inert ingredients Emulsifier - 1.2% *****
Total 100% *****
EPA Registration No 862-23-53219 *****
EPA Establishment No 862-PA-1 *****
NET Contents 2½ gallons *****
Distributed by ***** Nu Gro Corporation. ***** 5457 Oberlin Drive
***** San Diego, California 92121 ***** 2m 2090. *****

ACKNOWLEDGEMENT:

The above pesticide, device and/or environmental samples were collected by the PA. Dept. of Agriculture in connection with the administration and enforcement of the Pennsylvania Pesticide Control Act of 1973, as amended, and receipt of the sample(s) is hereby acknowledged. Any pesticide sample(s) collected are from inventory released for shipment, sale or use and not for relabeling, repackaging, reformulation or disposal.

SIGNATURE (Owner, Operator, or Agent)	TITLE (Owner, Operator, or Agent)
Charles D. Barksdale	Senior Environmental Consultant

DUPLICATE SAMPLES REQUESTED AND PROVIDED: ☒ YES ☐ NO

SAMPLES WERE: ☐ PURCHASED ☒ RECEIVED, NO CHARGE ☐ BORROWED

AMOUNT PAID FOR SAMPLES N/C ☐ CASH ☐ VOUCHER ☐ TO BE BILLED

TITLE OF COLLECTOR: BPI

SIGNATURE OF COLLECTOR: James M Hudson

PENNSYLVANIA DEPARTMENT OF AGRICULTURE

BUREAU OF PLANT INDUSTRY

NOTICE OF PESTICIDE INSPECTION

ADDRESS & PHONE (PDA REGIONAL OFFICE)
PDA Region III
RT 113, Box 300
Creamery, Pa 19430
215/489-1003

DATE: 10 April 92

HOUR: 9:30 (AM) PM

NAME OF INDIVIDUAL: Charles D. Barksdale JR.

TITLE: Sr. Environmental Consultant

NAME (Firm, Farmer, Homeowner, etc.): Nu Company Inc.

ADDRESS (Number, Street, City, State and ZIP code): Delaware + Green St
Marcus Hook. Pa. 19061-0126

PHONE NO. 215/447-1176

SIGNATURE OF PDA REPRESENTATIVE: James M Hudson

TITLE: BPI

REASON FOR INSPECTION; TO DETERMINE COMPLIANCE WITH THE PENNSYLVANIA PESTICIDE CONTROL ACT OF 1973, AS AMENDED.

- ☐ For the purpose of inspecting sites where pesticides are being used to collect data on the use of pesticides.
- ☐ For the purpose of inspecting sites where pesticides have been used.
- ☒ For the purpose of interviewing individuals to collect data for a pesticide investigation.
- ☒ For the purpose of inspecting and obtaining samples of any pesticides or devices packaged, labeled and released for shipment and samples of any containers and labeling for such pesticides or devices in places where they are held for use, distribution or sale.
- ☒ For the purpose of inspecting and/or obtaining copies of pertinent records.

VIOLATION SUSPECTED: Producer Establishment Inspection to determine compliance with FIFRA on Multi-Media Inspection

Jmh CDS
10 April 92

ORIGINATOR—HEADQUARTERS

0126

Sun Refining – 1/03 12/8/

Particulate Summary – Stack

(all grams)

	Filter	Front	Total	Back Imp.	[illegible]	Total
1	.00048	.0476	.04808	.00282	.0714	.07422
			48.08	2.82		74.22
2	.01240	.0336	.04600	.00082	.0648	.06562
			46.00	0.82		65.62
3	.00727	.0345	.04177	.00093	.0526	.05353
			41.77	0.93		53.53
4	.07003	.0596	.12963	.00109	.0618	.06289
			129.63	1.09		62.89
5	.06085	.1319	.19275	.00101	.0053	.00631
			142.75	1.01		61.31
6	.04458	.0464	.09098	.00122	.0371	.03832
			90.98	1.22		38.32

Moisture Data

	Initial (g)	Final (g)	Δ	Silica Gel	Total
1	496.5	507.1	10.6	80	90.6
2	492.4	505.5	13.1	90	103.1
3	498.8	511.5	12.7	90	102.7
4	504.0	519.5	15.5	85	100.5
5	495.0	511.5	16.5	80	96.5
6	504.3	514.5	10.2	90	100.2

SUN - OPEAT DATA

STOL 12/8

	R_{IN} =	CO_2	O_2	CO	
83.6	1	12.0	4.4	0.0	30.1(
83.6	2	12.0	4.4	0.0	30.1C
83.0	3	12.6	4.4	0.0	30.1C
82.8	4	12.4	4.8	0.0	30.18
84	5	12.5	3.5	0.0	30.14
84	6	12.5	3.5	0.0	30.14